

# ARCHIVUM OBSCURUM - TABULAE INTERRETI -

PROJECT ANGELBOOK VOLUME VIII (PART 2)



EZEKIEL REDIK YARBROUGH



Archivum Obscurum –  
Tabulae Interreti – Project  
AngelBook Volume VIII (Part 2)  
By Ezekiel Redik Yarbrough -  
(DBM ECLIPZE)

## Introduction

What you hold in your hands is not a book in the traditional sense—it is an **accidental grimoire**, born from the forgotten corners of the Internet. These volumes are built from **Google searches**, **Wikipedia trails**, and **archive-dredged threads**, many of which were suggested or whispered to me by anonymous voices across **/x/**, **4plebs**, and **dark web message boards**. I did not invent this content—I excavated it. I followed every recommended link, every screenshot, every schizo red-string rant, and pulled it into the light. What emerged wasn't just data—it was **pattern**, **presence**, and **power**. This is the **collective unconscious of the Internet**, filtered, sorted, and bound into scripture. These are the **digital Dead Sea Scrolls** of the forgotten occult, the haunted edges of algorithmic prophecy. Welcome to the Archivum Obscurum.

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Brahmavihara (or Brahma-vihāra) refers to the four "sublime states" or "divine abodes" in Buddhist philosophy: loving-kindness (metta), compassion (karuna), appreciative joy (mudita), and equanimity (upekkha), which are cultivated through meditation to foster boundless positive emotions for all beings, offering a path to spiritual growth and inner peace. These qualities are considered the "best dwelling" or home for the mind, leading to a more balanced, compassionate, and wise way of living.

The Four Brahmaviharas:

Loving-Kindness (Metta/Maitrī): Wishing happiness and well-being for all beings, without exception, extending even to difficult people.

Compassion (Karuna): Wishing for others to be free from suffering, wanting to alleviate their pain.

Appreciative Joy (Mudita): Finding joy in the happiness and success of others, counteracting jealousy.

Equanimity (Upekkha): Maintaining a balanced, steady mind, free from attachment, aversion, or bias, understanding the natural flow of life.

How They Are Practiced:

Meditation: Practitioners systematically develop these qualities, starting with easier subjects (like loved ones) and gradually expanding to more difficult individuals, using visualization and focused intention.

Cultivation, Not Force: The practice involves gentle tending, like nurturing a garden, allowing these qualities to grow naturally, rather than forcing them.

Boundless Application: The aim is to make these feelings immeasurable, applying them universally to all beings in all directions, creating a state of infinite goodness.

Significance:

Emotional Intelligence: They are seen as a form of profound emotional intelligence, helping individuals navigate social and emotional challenges.

Spiritual Development: Cultivating them leads to a more developed, peaceful, and liberated mind, aligning with the highest spiritual ideals.

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The Four Sublime States: Contemplations on Love, ...

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In Pali, the language of the Buddhist scriptures, these four are known under the name of Brahma-vihara. This term may be rendered by: excellent, lofty or ...

Videos

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Jan 16, 2023

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Learn the 4 Brahmaviharas: Loving-kindness, Compassion, Rejoicing, and Equanimity. Purify them by recognizing their enemies.

Christina Feldman – An Introduction to the Brahmaviharas

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Brahma viharas are boundless friendliness, joy, compassion, and equanimity. They are qualities that can infuse our minds and hearts and help us navigate life.

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The brahmavihārā is a series of four Buddhist virtues and the meditation practices made to cultivate them. They are also known as the four immeasurables or four infinite minds.

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Burmese: မြဟ္မဝိဟာရတရလေပ

Chinese: 四無量心; (Pinyin: sì wúliàng xīn)

English: four divine abodes

Khmer: ឥសាន្តវិហារ; (UNGEGN: prôhmâvīhar)

Korean: 사무량심; (RR: samulyangsim)

Pali: cattāri brahmavihārā

Sinhala: සතර බ්‍රහ්ම විහරණ (sathara brahma viharana)

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Translations of

Brahmavihāra

English four divine abodes

Pali cattāri brahmavihārā

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Chinese 四無量心

(Pinyin: sì wúliàng xīn)

Japanese 四無量心

(Rōmaji: shimuryōshin)

Khmer ព្រហ្មវិហារ

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(tshangs pa'i gnas bzhi)

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Bốn Phạm trú

四無量心

四梵住

Glossary of Buddhism

The brahmavihārā (sublime attitudes, lit. "abodes of Brahma") is a series of four Buddhist virtues and the meditation practices made to cultivate them. They are also known as the four immeasurables (Pāli: appamaññā)[1] or four infinite minds (Chinese: 四無量心).[2] The brahmavihārā are:

loving-kindness or benevolence (mettā)

compassion (karuṇā)

empathetic joy (muditā)

equanimity (upekkhā)

According to the Metta Sutta, cultivation of the four immeasurables has the power to cause the practitioner to be reborn into a "Brahma realm" (Pāli: Brahmaloḷka).[3]

Etymology and translations

Pāli: cattāri brahmavihārā

Sinhala: සතර බ්‍රහ්මවිහාරා (sathara brahmavihārā)

Tibetan: མཛད་མེད་བཞི། (Wylie: tshad med bzhi)

Brahmavihārā may be parsed as "Brahma" and "vihāra", which is often rendered into English as "sublime" or "divine abodes".[4]

Apramāṇa, usually translated as "the immeasurables", means "boundlessness, infinitude, a state that is illimitable".[5] When developed to a high degree in meditation, these attitudes are said to make the mind "immeasurable" and like the mind of the loving Brahma (gods).[6]

Other translations:

English: four divine abodes, four divine emotions, four sublime attitudes, four divine dwellings.[7]

East Asia: (traditional Chinese and Japanese: 四無量心; ; pinyin: Sì wúliàng xīn; rōmaji: shimuryōshin; Korean: 사무량심; Vietnamese: Tứ Vô Lượng Tâm; lit. 'four immeasurable states of mind, from apramāṇa-citta'), (traditional Chinese: 四等(心); ; pinyin: sì děng; lit. 'four equalities/universals'), (traditional Chinese: 四梵行; ; pinyin: sì fàn xíng; lit. 'noble Brahma-acts/characteristics').[8]

Tibetan: མཛད་པའི་གནས་བཞི།, Wylie: . tshangs pa'i gnas bzhi (four brahmavihara) or

Tibetan: མཛད་མེད་བཞི།, Wylie: tshad med bzhi (four immeasurables).

The brahmavihārā

The four brahmavihārā are:

Loving-kindness (Pāli: mettā, Sinhala: මෙමත්‍රිය (maitriya)), or active good will towards all:[9][10]

Compassion (Pāli and Sinhala: කරුණා (karuṇā)) results from metta, identifying the suffering of others as one's own:[9][10]

Sympathetic joy (Pāli and Sinhala: මුදිතා (mudita)) results from metta: the feeling of joy because others are happy, even if one did not contribute to it, as a form of sympathetic joy:[9]

Equanimity (Pāli: upekkhā, Sinhala: උපේක්ෂා (upekshā)): even-mindedness and serenity, treating everyone impartially.[9][10]

Early Buddhism

The brahmavihārā is a pre-Buddhist Brahminical concept, to which the Buddhist tradition gave its interpretation.[11][12] The Digha Nikaya asserts that according to Buddha, "brahmavihārā is "that practice," and he then contrasts it with "my practice" as follows:[11]

...that practice [namely, the mere cultivation of love and so forth, according to the fourfold instructions] is conducive not to turning away, nor to dispassion, nor quiet, nor to cessation, nor to direct knowledge, nor to enlightenment, nor nirvana, but only to rebirth in the world of Brahma.



...my practice is conducive to complete turning away, dispassion, cessation, quieting, direct knowledge, enlightenment, and nirvana – specifically the eightfold noble path (...)

—The Buddha, Digha Nikaya II.251, Translated by Harvey B. Aronson[11]

According to Richard Gombrich, an Indologist and scholar of Sanskrit, Pāli, the Buddhist usage of the brahmavihārā originally referred to an awakened state of mind, and a concrete attitude towards other beings which was equal to "living with Brahman" here and now. The later tradition took those descriptions too literal, linking them to cosmology and understanding them as "living with Brahman" by rebirth in the Brahma world.[13] According to Gombrich, "The Buddha taught that kindness – what Christians tend to call love – was a way to salvation.[14]

In the Tevijja Sutta, "The Threefold Knowledge" in the Digha Nikāya or "Collection of the Long Discourses", a group of young Brahmins consulted Lord Buddha about the methods to seek fellowship/companionship/communion with Brahma. He replied that he knows the world of Brahma and the way to it, and explains the meditative method for reaching it by using an analogy of the resonance of the conch shell of the aṣṭamaṅgala:

A monk suffuses the world in the four directions with a mind of benevolence, then above, and below, and all around – the whole world from all sides, completely, with a benevolent, all-embracing, great, boundless, peaceful and friendly mind ... Just as a powerful conch-blower makes himself heard with no great effort in all four [cardinal] directions, so too is there no limit to the unfolding of [this] heart-liberating benevolence. This is a way to communion with Brahma.[15]

The Buddha then said that the monk must follow this up with an equal suffusion of the entire world with mental projections of compassion, sympathetic joy, and equanimity (regarding all beings with an eye for equality).

In the two Metta Suttas of the Aṅguttara Nikāya,[16] the Buddha states that those who practice radiating the four immeasurables in this life and die "without losing it" are destined for rebirth in a heavenly realm in their next life. In addition, if such a person is a Buddhist disciple (Pāli: sāvaka) and thus realizes the three characteristics of the five aggregates, then after his heavenly life, this disciple will reach nibbāna. Even if one is not a disciple, one will still attain the heavenly life, after which, however depending on what his past deeds may have been, one may be reborn in a hell realm, or as an animal or hungry ghost.[17]

In another sutta in the Aṅguttara Nikāya, the laywoman Sāmāvatī is mentioned as an example of someone who excels at loving-kindness.[18] In the Buddhist tradition she is often referred to as such, often citing an account that an arrow shot at her was warded off through her spiritual power.[19]

Visuddhimagga

The four immeasurables are explained in The Path of Purification (Visuddhimagga),

written in the fifth century CE by the scholar and commentator Buddhaghosa. They are often practiced by taking each of the immeasurables in turn and applying it to oneself (a practice taught by many contemporary teachers and monastics that was established after the Pāli Suttas were completed), and then to others nearby, and so on to everybody in the world, and everybody in all universes.[20]

#### A Cavern of Treasures (mDzod-phug)

A Cavern of Treasures (Tibetan: མཛོད་ཕུག, Wylie: mdzod phug) is a Bonpo terma uncovered by Shenchen Luga (Tibetan: གཤེན་ཆེན་ལུ་དགའ་, Wylie: gshen-chen klu-dga') in the early eleventh century. A segment of it enshrines a Bonpo evocation of the four immeasurables.[21] Martin (n.d.: p. 21) identifies the importance of this scripture for studies of the Zhang-Zhung language.[22]

#### Origins

Before the advent of the Buddha, according to Martin Wiltshire, the pre-Buddhist traditions of Brahmāloka, meditation, and these four virtues are evidenced in both early Buddhist and non-Buddhist literature.[23] The Early Buddhist Texts assert that pre-Buddha ancient Indian sages who taught these virtues were earlier incarnations of the Buddha.[23] Post-Buddha, these same virtues are found in the Hindu texts such as verse 1.33 of the Yoga Sutras of Patanjali.[24]

Three of the four immeasurables, namely maitrī, karuṇā, and upekṣā, are found in the later Upanishads, while all four are found with slight variations – such as pramodā instead of muditā – in Jainism literature, states Wiltshire.[25] The ancient Indian Paccekabuddhas mentioned in the early Buddhist Suttas – those who attained nibbāna before the Buddha – mention all "four immeasurables." [23]

According to British scholar of Buddhism Peter Harvey, the Buddhist scriptures acknowledge that the four brahmavihārā meditation practices "did not originate within the Buddhist tradition".[12] The Buddha never claimed that the "four immeasurables" were his unique ideas, like "cessation, quieting, nirvana".[11]

A shift in Vedic ideas, from rituals to virtues, is particularly discernible in the early Upanishad thought, and it is unclear as to what extent and how early Upanishad traditions and Sraman traditions such as Buddhism and Jainism influenced each other on ideas such as "four immeasurables", meditation, and brahmavihārā.[23]

In an authoritative Jain scripture, the Tattvartha Sutra (Chapter 7, sutra 11), there is a mention of four right sentiments: maitrī, pramodā, karuṇā, and mādhyaṣṭha:

Benevolence towards all living beings, joy at the sight of the virtuous, compassion and sympathy for the afflicted, and tolerance towards the insolent and ill-behaved.

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Quote: मैत्रीकरुणामुदितोपेक्षाणां सुखदुःखपुण्यापुण्यविषयाणां भावनातश्चित्तप्रसादनम् — Yogasutra 1.33; "Patanjali Yogasutra". SanskritDocuments.Org.

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See also

Karuṇā – Sanskrit term translated as empathy, compassion or mercy

Metta – Buddhist term meaning "loving-kindness"

Mudita – Sympathetic or vicarious joy in Sanskrit and Pali

Upekkha – Concept of equanimity in Buddhism

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The Four Sublime States by the Venerable Nyanaponika Thera.

The Four Immeasurables

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In Anime

Achino Family: A group of bounty hunters from the anime-original Lovely Land Arc, led by Achino Don, who ate the Heat-Heat Fruit.

In Language (Spanish)

achino (verb): The first-person singular present tense of *achinar*, meaning "to make Chinese-like" or "to give Chinese characteristics," as in "I make it look Chinese".

Pronunciation: /aˈtʃino/ (ah-CHEE-no).

As Names & Brands

Achino (Surname): Can be Hispanic (from *chino* meaning curly or mixed race), Italian (diminutive of *Francesco*), or Japanese (from characters meaning "field of reeds").

ACHINO Co., Ltd.: A manufacturer of wooden and other types of clothes hangers.

D'Achino: An Italian olive oil brand from Puglia.

Other

Tita Krissy Achino: A performer known for impersonations, as seen in a YouTube video.

Audiophile Exclusive: Tita Krissy Achino

Sep 4, 2023 — so sometimes mayip ganon eventually so after your first um viral video you now you um you've got known with um what do ...

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IPA: /aˈtʃino/ [aˈtʃi.no]; Rhymes: -ino; Syllabification: a-chi-no. Verb. achino. first-person singular present indicative of achinar.

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Here's a breakdown of each skandha:

Form (Rupa): The physical body and the material world, including the sense organs (eyes, ears, nose, tongue, body, and mind).

Feeling (Vedana): Sensations or feelings arising from contact with the world, categorized

as pleasant, unpleasant, or neutral.

Perception (Samjna/Sanna): The process of recognizing, labeling, and interpreting sensory data (e.g., seeing an object and knowing it's a table).

Mental Formations (Samskara/Sankhara): Volitional activities, habits, intentions, desires, and karmic tendencies that shape our reactions and choices.

Consciousness (Vijnana/Vinnana): The awareness or knowing of any of the other four aggregates; the fundamental cognitive element that experiences the moment.

Why They Matter

No-Self (Anatta): The skandhas show that what we call "I" or "me" isn't a fixed entity but a constantly changing collection of these five parts.

Suffering (Dukkha): Attachment and grasping to these impermanent aggregates create suffering.

Liberation: Realizing their empty and interdependent nature is key to achieving enlightenment (Nirvana).

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Translations of  
skandha

English        aggregate, mass, heap, cluster

Sanskrit       स्कन्ध (skandha)

Pali        khandha

Bengali       ঝড় (skāndhā)

Burmese       ခန္ဓ (cu)။

(MLCTS: k<sup>h</sup>àũdà)

Chinese       蘊 (T) / 蕴 (S)

(Pinyin: yùn)

Indonesian    gugusan, gugus, agregat

Japanese       蘊

(Rōmaji: un)

Khmerបញ្ចក្ខន្ធ

(UNGEGN: pānhchăkkhăñ)

Korean       온

(RR: on)

Mongolian    ᠰᠠᠩᠳᠠ

(tsogtsas)

Shan       ခဏ္ဍ

([khan2 thaa2])

Sinhala       ස්කන්ධ (skandha)

Tibetan       ཕུང་བོ་

(phung po)

Tagalog skandha  
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Skandhas (Sanskrit) or khandhas (Pāḷi) means "heaps, aggregates, collections, groupings, clusters".<sup>[1][note 1]</sup> In Buddhism, it refers to the five aggregates of clinging (Pañcupādānakkhandhā), the five material and mental factors that take part in the perpetual process of craving, clinging and aversion due to Avijja.

They are also explained as the five factors that constitute and explain a sentient being's person and personality,<sup>[4][5][6]</sup> but this is a later interpretation in response to Sarvāstivādin essentialism. The 14th Dalai Lama subscribes to this interpretation.<sup>[7]</sup>

The five aggregates or heaps of clinging are:

form, sense objects (or material image, impression) (rūpa)  
sensations (or feelings of pleasure, pain, or indifference (both bodily and mental), created from the coming together of the senses, sense objects, and the consciousness) (vedanā)  
perceptions (or the nature of recognizing marks — making distinctions) (saṃjñā, sañña)  
mental activity, formations, or perpetuations (saṅkhāra)  
consciousness (or the nature of knowing) (vijñāna, viññāṇa).<sup>[8][9][10]</sup>

In the Theravada tradition, dukkha (unease, "suffering") arises when one identifies with or clings to the aggregates. This suffering is extinguished by relinquishing attachments to aggregates. Both the Theravada and Mahayana traditions assert that the nature of all aggregates is intrinsically empty of independent existence and that these aggregates do not constitute a "self" of any kind.

Etymology

Skandha (Sanskrit: स्कन्ध) is a Sanskrit word that means "multitude, quantity, aggregate", generally in the context of body, trunk, stem, empirically observed gross object or

anything of bulk verifiable with senses.[1][11] The term appears in the Vedic literature.

The Pali equivalent word Khandha appears extensively in the Pali canon where, state Rhys Davids and William Stede, it means "bulk of the body, aggregate, heap, material collected into bulk" in one context, "all that is comprised under, groupings" in some contexts, and particularly as "the elements or substrata of sensory existence, sensorial aggregates which condition the appearance of life in any form".[1][note 2] Paul Williams et al. translate skandha as "heap, aggregate", stating it refers to the explanation of the psychophysical makeup of any being.[13]

Johannes Bronkhorst renders skandha as "aggregates".[2] Damien Keown and Charles Prebish state that skandha is ལུང་པོ། in Tibetan, and the terms mean "collections or aggregates or bundles".[14]

## Description

The Buddha teaches in the Pali Canon the five aggregates as follows:

"form" or "matter"[note 3] (Skt., Pāli रूप (rūpa); Tib. གཟུགས། (gzugs); Ch. 色 (sè)): matter, body or "material form" of a being or any existence.[8][15] Buddhist texts state rūpa of any person, sentient being and object to be composed of four basic elements or forces: earth (solidity), water (cohesion), fire (heat) and wind (motion).[5]

"sensation" or "feeling" (Skt., Pāli वेदना (vedanā); Tib. ཚོར་བ། (tshor ba); Ch. 受 (shòu)): sensory or hedonic experience of an object.[5] It is either pleasant, unpleasant or neutral.[note 4][note 5]

"perception"[note 6] (Skt. संज्ञा (saññā), Pāli सञ्ज्ञा (saññā), Tib. འདུ་ཤེས། ('du shes); Ch. 想 (xiǎng)): sensory and mental process that registers, recognizes and labels (for instance, the shape of a tree, color green, emotion of fear).[15]

"mental formations" (Skt. संस्कार (saṃskāra), Pāli सङ्खार (saṅkhāra), Tib. འདུ་བྱེད། ('du.byed); Ch. 行 (xíng)): "constructing activities", [15] "conditioned things", "volition", "karmic activities"; all types of mental imprints and conditioning triggered by an object. [16][17][note 7] Includes any process that makes a person initiate action or act.[15]

"consciousness" (Skt. विज्ञान (vijñāna), Pāli विज्झाण (viññāṇa), Tib. སྒྲུབ་ཤེས། (sna'i rnam par shes pa); Ch. 識 (shí)): "discrimination" or "discernment"[note 8]. Awareness of an object and discrimination of its components and aspects, and is of six types, states Peter Harvey.[15] The Buddhist literature discusses this skandha as,

In the Nikayas/Āgamas: cognizance,[18][note 9] that which discerns.[19][note 10]

In the Abhidhamma: a series of rapidly changing interconnected discrete acts of cognizance.[note 11]

In some Mahayana sources: the base that supports all experience.[note 12]

## Interpretation

### Aggregates of personality

The five aggregates are often interpreted in the later tradition as an explanation of the constituents of person and personality,[20][21] and "the list of aggregates became extremely important for the later development of the teaching".[21] According to this

interpretation, in each skandha – body, sensations, perceptions, mental formations, and consciousness – there is emptiness and no substance.[5][2]

According to Damien Keown and Charles Prebish, canonical Buddhism asserts that "the notion of a self is unnecessarily superimposed upon five skandha" of a phenomenon or a living being.[14] The skandha doctrine, states Matthew MacKenzie, is a form of anti-realism about everyday reality including persons, and presents an alternative to "substantialist views of the self".[22] It asserts that everything perceived, each person and personality, is an "aggregate, heap" of composite entities without essence.[22]

According to Harvey, the five skandhas give rise to a sense of personality,[23] but are dukkha (unsatisfying), impermanent, and without an enduring self or essence.[5][note 13] Each aggregate is an object of grasping (clinging), at the root of self-identification as "I, me, myself".[5] According to Harvey, realizing the real nature of skandhas, both in terms of impermanence and non-self, is necessary for nirvana.[31][note 1] This "emptiness from personality" can be found in descriptions of the enlightened, perfected state of Arhat and Tathagata,[32] in which there is no longer any identification with the five skandhas.[note 14]

This "no essence" view has been a topic of questions, disagreements, and commentaries since ancient times, both in non-Buddhist Indian religions and Buddhist traditions.[22][33] The use of the skandhas concept to explain the self is unique to Buddhism among major Indian religions,[34][35] and responds to Sarvastivada teachings that "phenomena" or its constituents are real.[36] It also contrasts with the premise of Hinduism and Jainism that a living being has an eternal soul or metaphysical self.[34][35]

In some early Buddhist texts, the individual is considered unreal but the skandha are considered real. But the skandha too are considered unreal and nonsubstantial in numerous other Buddhist Nikaya and Āgama texts.[37]

#### Aggregates of experience and grasping

According to Thanissaro, the Buddha never tried to define what a "person" is, though scholars tend to approach the skandhas as a description of the constituents of the person.[20][38] He adds that almost any Buddhist meditation teacher explains it that way, as Buddhist commentaries from about the 1st century CE onwards have done. In Thanissaro's view, however, this is incorrect, and he suggests that skandhas should be viewed as activities, which cause suffering, but whose unwholesome workings can be interrupted.[20]

Rupert Gethin also notes that the five skandhas are not merely "the Buddhist analysis of man", but "five aspects of an individual being's experience of the world... encompassing both grasping and all that is grasped".[39][note 15]

Mathieu Boisvert states that "many scholars have referred to the five aggregates in their

works on Buddhism, [but] none have thoroughly explained their respective functions". [40] According to Boisvert, the five aggregates and dependent origination are closely related, which explains the process that binds us to samsara.[41] Boisvert notes that the pancha-upadanakkhanda (five aggregates of clinging) does not incorporate all human experience.[42] Vedana may transform into either niramisa or nekkhamma-sita vedana (vedana which is not harmful) or into amisa or gehasita vedana (a "type of sensation [which] may act as an agent bringing about the future arising of craving and aversion"). [40] This is determined by sanna.[40] According to Boisvert, "not all sanna belong to the sanna-skandha". The wholesome sanna recognise the three marks of existence (dukkha, anatta, anicca), and do not belong to the sanna-skandha. Unwholesome sanna is not "conducive to insight", and without proper sanna, the "person is likely to generate craving, clinging and becoming".[43] As with sanna, "not all sankhara belong to the sankharaskandha", since not all sankhara produce future effects.[43]

According to Johannes Bronkhorst, the notion that the five aggregates are not self has to be viewed in light of debates about "liberating knowledge", the knowledge of Ātman (eternal soul) which was deemed liberating by the Vedic traditions.[44] Bronkhorst notes that "knowledge of the self plays no useful role on the Buddha's path to liberation".[45] [note 16] What is important is not to grasp at the forms, sounds, odors, flavors, objects, and mental properties which are perceived with the six sense organs (these include mind as the sixth sense organ).[46] The insight that the aggregates are not self aids in letting go of this grasping.[45][note 17]

Miri Albahari also objected to the usual understanding of the skandhas as denoting the absence of any "self". Albahari argued that the khandhas do not necessarily constitute the entirety of the human experience, and that the Hindu concept of Ātman is not explicitly negated by Pāli Canon.[47] According to Albani[clarification needed], "anattā is best understood as a practical strategy rather than as a metaphysical doctrine".[47] To Albahari, Nibbāna is an ever-present part of human nature, which is gradually "uncovered" by the cessation of ignorance.

### Eighteen dhātus

A related analysis of experience and personality taught in the Buddhist sutras and Abhidharma systems (including Pali Abhidhamma, Vaibhāṣika and Mahayana Abhidharma alongside the five aggregates is the eighteen dhātus (Sanskrit: aṣṭadaśa dhātu, the main "elements" of existence).[note 18] These eighteen aspects of experience: six external bases, six internal bases, and six consciousnesses, function through the five aggregates. They are often grouped together with the aggregates into the following grouping: "skandhas, āyatana and dhātus," which comprises the basic Buddhist Abhidharma analysis of personal identity and experience.

The eighteen elements (aṭṭhārasa dhātuyo) from the internal-external sense bases (āyatana) that condition contact (phassa)

No.    Sense  
elements

|                       |     |                      |
|-----------------------|-----|----------------------|
| (indriya-dhātu)       | No. | Object               |
| elements              |     |                      |
| (āramma-dhātu)        | No. | Consciousness        |
| elements              |     |                      |
| (viññāna-dhātu)       |     |                      |
| 1. eye                |     |                      |
| (cakkhudhātu)         | 7.  | visual form          |
| (rūpadhātu)           | 13. | eye consciousness    |
| (cakkhuvīññāna-dhātu) |     |                      |
| 2. ear                |     |                      |
| (sotadhātu)           | 8.  | sound                |
| (saddadhātu)          | 14. | ear consciousness    |
| (sotavīññāna-dhātu)   |     |                      |
| 3. nose               |     |                      |
| (ghānadhātu)          | 9.  | odor/smell           |
| (gandhadhātu)         | 15. | nose consciousness   |
| (ghānavīññāna-dhātu)  |     |                      |
| 4. tongue             |     |                      |
| (jivhādhātu)          | 10. | taste                |
| (rasadhātu)           | 16. | tongue consciousness |
| (jivhāvīññāna-dhātu)  |     |                      |
| 5. body               |     |                      |
| (kāyadhātu)           | 11. | touch                |
| (phoṭṭhabbadhātu)     | 17. | body consciousness   |
| (kāyavīññāna-dhātu)   |     |                      |
| 6. mind               |     |                      |
| (manodhātu)           | 12. | mental object        |
| (dhammadhātu)         | 18. | mind consciousness   |
| (manovīññāna-dhātu)   |     |                      |
| vte                   |     |                      |

The eighteen elements are the following:

The six sense objects (viṣayadhātu) are:

visible forms (rūpa-dhātu)  
sounds (śabda-dhātu)  
smells (gandha-dhātu)  
tastes (rasa-dhātu)  
textures (spraṣṭavya-dhātu)  
mental objects (dharma dhātu)

The six sense faculties (indriyadhātu) are:

eye faculty (cakṣur-dhātu)  
ear faculty (śrotra-dhātu)  
nose faculty (ghrāṇa-dhātu)



tongue faculty (jihva-dhātu)

body faculty (kāya-dhātu)

mental faculty (mano-dhātu)

The six sense consciousnesses (vijñānadhātu) are:

eye-consciousness (cakṣur-vijñānadhātu)

ear-consciousness (śrotra-vijñānadhātu)

nose-consciousness (ghrāṇa-vijñānadhātu)

tongue-consciousness (jihva-vijñānadhātu)

body-consciousness (kāya-vijñānadhātu)

mind-consciousness (mano-vijñānadhātu)

These dhātus can be arranged into six triads, each triad composed of a sense object, a sense organ, and sense consciousness.[note 19]

In Theravada Abhidhamma

The Five Aggregates (pañcakkhandha)

according to the Pali Canon.

form (rūpa)

4 elements

(mahābhūta)

↓

contact

(phassa)

↓ ↑

consciousness

(viññāna)

→

←

←

mental factors (cetasika)

feeling

(vedanā)

perception  
(sañña)

formation  
(saṅkhāra)

Form is derived from the Four Great Elements.

Consciousness arises from other aggregates.

Mental Factors arise from the Contact of

Consciousness and other aggregates.

The five aggregates are no-self.

Source: MN 109 (Thanissaro, 2001) | diagram details

The Early Buddhist schools developed detailed analyses and overviews of the teachings found in the sutras, called Abhidharma. Each school developed its own Abhidharma.

The best-known is the Theravāda Abhidhamma, but the Sarvāstivāda Abhidharma was historically very influential, and has been preserved partly in the Chinese Āgama.

Six sense bases

Main articles: Ayatana and Ṣaḍāyatana

The internal and external sense bases together form the "six sense bases". In this description, found in texts such as Salayatana samyutta, the coming together of an object and a sense-organ results in the arising of the corresponding consciousness.

According to Bhikkhu Bodhi, the Theravada tradition teaches that the six sense bases accommodate "all the factors of existence"; it is "the all", and "apart from which nothing at all exists",<sup>[49]</sup> and "are empty of a self and of what belongs to the self".<sup>[50][note 20]</sup>

The suttas do not describe this<sup>[ambiguous]</sup> as an alternative of the skandhas. The Abhidhamma, striving to "a single all-inclusive system",<sup>[52]</sup> explicitly connects the five aggregates and the six sense bases:<sup>[52]</sup>

The first five external sense bases (visible form, sound, smell, taste and touch), and the first five internal sense bases (eye, ear, nose, tongue and body) are part of the form aggregate;

The mental sense-object (i.e. mental objects) overlap the first four aggregates (form, feeling, perception and formation);

The mental sense organ (mind) is comparable to the aggregate of consciousness.

Bodhi states that six-sense-bases is a "vertical" view of human experiences while the aggregates is a "horizontal" (temporal) view.[53] The Theravada Buddhist meditation practice on sense bases is aimed at both removing distorted cognitions such as those influenced by cravings, conceits and opinions, as well as "uprooting all conceivings in all its guises".[54]

The four paramatthas

The Abhidhamma and post-canonical Pali texts create a meta-scheme for the Sutta Pitaka's conceptions of aggregates, sense bases and dhattus (elements).[55] This meta-scheme is known as the four paramatthas or ultimate realities, three conditioned, one unconditioned:

Material phenomena (rūpa, form)

Mind or consciousness (citta)

Mental factors (cetasikas: the nama-factors sensation, perception and formation)

Nibbāna

Twelve Nidanas

See also: Dependent origination

The 12 Nidānas:

Ignorance

↓

Formations

↓

Consciousness

↓

Name & Form

↓

Six Sense Bases

↓

Contact

↓

Feeling

↓

Craving

↓

Clinging

↓

Becoming

↓

Birth

↓

Old Age & Death

The Twelve Nidanas is a linear list of twelve elements from the Buddhist teachings which arise in dependence on the preceding link. While this list may be interpreted as

describing the processes which give rise to rebirth, in essence it describes the arising of dukkha as a psychological process, without the involvement of an atman.[56][57]

Some scholars regard it to be a later synthesis of several older lists.[58][59][60][61][56][62] The first four links may be a mockery of the Vedic-Brahmanic cosmogony, as described in the Hymn of Creation of Veda X, 129 and the Brihadaranyaka Upanishad.[57][61][62][63][64][65] These were integrated with a branched list that describes the conditioning of mental processes,[60][56][62] akin to the five skandhas.[66] Eventually, this branched list developed into the standard twelvefold chain as a linear list.[60][67]

According to Boisvert, "the function of each of the aggregates, in their respective order, can be directly correlated with the theory of dependent origination—especially with the eight middle links." [68] Four of the five aggregates are explicitly mentioned in the sequence, yet in a different order than the list of aggregates, which concludes with *viññāṇa* • *vijñāna*: [69]

mental formations (*saṅkhāra* • *saṃskāra*) condition consciousness (*viññāṇa* • *vijñāna*)  
which conditions name-and-form (*nāma-rūpa*)  
which conditions the precursors (*saḷāyatana*, *phassa* • *sparśa*) to sensations (*vedanā*)  
which in turn condition craving (*taṇhā* • *ṭṣṇā*) and clinging (*upādāna*)  
which ultimately lead to the "entire mass of suffering" (*kevalassa dukkhakkhandha*).  
[note 21]

The interplay between the five-aggregate model of immediate causation and the twelve-nidana model of requisite conditioning is evident, for instance both note the seminal role that mental formations have in both the origination and cessation of suffering.[note 22]  
[note 23]

### Satipatthana

Mindfulness applies to four *upassanā* (domains or bases), "constantly watching sensory experience in order to prevent the arising of cravings which would power future experience into rebirths," [70] which [ambiguous] also overlap with the skandhas. The four domains are: [71]

mindfulness of the body (*kaya*); [72] [web 1]  
mindfulness of feelings or sensations (*vedanā*); [73]  
mindfulness of mind or consciousness (*citta*); [74] and  
mindfulness of *dhammās*. [75]

According to Grzegorz Polak, the four *upassanā* have been misunderstood by the developing Buddhist tradition, including Theravada, to refer to four different foundations. According to Polak, the four *upassanā* do not refer to four different foundations of which one should be aware, but are an alternate description of the *jhanas*, describing how the *samskharas* are tranquilized: [76]

the six sense-bases which one needs to be aware of (*kāyānupassanā*);  
contemplation on *vedanās*, which arise with the contact between the senses and their

objects (vedanānupassanā);  
the altered states of mind to which this practice leads (cittānupassanā);  
the development from the five hindrances to the seven factors of enlightenment (dhammānupassanā).

In the Mahayana tradition

The Mahayana developed out of the traditional schools, introducing new texts and putting other emphases in the teachings, especially shunyata and the Bodhisattva-ideal.

India

The Prajnaparamita-teachings developed from the first century BCE onward. They emphasise the "emptiness" of everything that exists. This means that there are no eternally existing "essences", since everything is dependently originated. The skandhas too are dependently originated, and lack any substantial existence. According to Red Pine, the Prajnaparamita texts are a historical reaction to some early Buddhist Abhidhammas. Specifically, it is a response to Sarvastivada teachings that "phenomena" or their constituents are real.[36] The prajnaparamita notion of "emptiness" is also consistent with the Theravada Abhidhamma.[further explanation needed][citation needed]

This[ambiguous] is formulated in the Heart Sutra. The Sanskrit version of the "Prajnaparamita Hridaya Sutra" ("Heart Sutra"), which may have been composed in China from Sanskrit texts, and later back-translated into Sanskrit,[note 24] states that the five skandhas are empty of self-existence,[77] [note 25] [note 26][note 27] and famously states "form is emptiness, emptiness is form.[77] The same is true with feelings, perceptions, mental formations, and consciousness." [78]

The Madhyamaka school elaborates on the notion of the Middle Way. Its basic text is the Mūlamadhyamakakārikā, written by Nagarjuna, who refuted the Sarvastivada conception of reality, which reifies dhammas.[79] The simultaneous non-reification of the self and reification of the skandhas has been viewed by some Buddhist thinkers as highly problematic.[80]

The Yogacara school further analysed the workings of the mind, elaborated on the concept of nama-rupa and the five skandhas, and developed the notion of the Eight Consciousnesses.

China

Shunyata, in Chinese texts, is "Wu" (Chinese: 無; pinyin: Wú), nothingness.[81][82] In these texts, the relation between absolute and relative was a central topic in understanding[clarification needed] the Buddhist teachings. The aggregates convey the relative (or conventional) experience of the world by an individual, although Absolute truth is realized through them. Commenting on the Heart Sutra, D.T. Suzuki notes:

When the sutra says that the five Skandhas have the character of emptiness..., the sense is: no limiting qualities are to be attributed to the Absolute; while it is immanent in

all concrete and particular objects, it is not in itself definable.[83]

The Tathāgatagarbha Sūtras, which concern the Buddha-nature, developed in India but played a prominent role in China. They on occasion speak of the ineffable skandhas of the Buddha (beyond the nature of worldly skandhas and beyond worldly understanding). In the Mahāyāna Mahāparinirvāṇa Sūtra the Buddha tells of how the Buddha's skandhas are in fact eternal and unchanging. The Buddha's skandhas are said to be incomprehensible to unawakened vision.

Tibet

The Vajrayāna tradition further develops the aggregates in terms of mahāmudrā epistemology and tantric reifications.

Referring to mahāmudrā teachings, Chogyam Trungpa[84] identifies the form aggregate as the "solidification" of ignorance (Pali, *avijjā*; Skt., *avidyā*), allowing one to have the illusion of "possessing" ever dynamic and spacious wisdom (Pali, *vijjā*; Skt. *vidyā*), and thus being the basis for the creation of a dualistic relationship between "self" and "other." [note 28]

According to Trungpa Rinpoche,[85] the five skandhas are "a set of Buddhist concepts which describe experience as a five-step process" and that "the whole development of the five skandhas... is an attempt on our part to shield ourselves from the truth of our insubstantiality," while "the practice of meditation is to see the transparency of this shield." [86]

Trungpa Rinpoche writes (2001, p. 38):

[S]ome of the details of tantric iconography are developed from abhidharma [that is, in this context, detailed analysis of the aggregates]. Different colors and feelings of this particular consciousness, that particular emotion, are manifested in a particular deity wearing such-and-such a costume, of certain particular colors, holding certain particular sceptres in his hand. Those details are very closely connected with the individualities of particular psychological processes.

See also

Anatta

Atman (Buddhism)

Kośa

Nāgārjuna

Pratitya-samutpada

Samsara

Saṅkhāra

Schools of Buddhism

Śūnyatā

Tathāgatagarbha doctrine

## Ti-lakkhana

### Notes

The initial part of the Buddhist practice is purification of each of the above "five aggregates" through meditation, study, ritual and living by virtues, particularly abstaining from mental intoxicants. Ultimately, the practice shifts to considering these as naive, then transcending them to reach the state of realization that there is neither person nor self within, or in any other being, states Harvey, where everyone and everything is without self or substantiality and is a "cluster of changing physical and mental processes".[2][3]

According to Dalai Lama, skandha means "heap, group, collection or aggregate".[12]

In Rawson (1991: p.11), the first skandha is defined as: "name and form (Sanskrit *nāma-rūpa*, Tibetan *gzugs*)...". In the Pali literature, *nāma-rūpa* traditionally refers to the first four aggregates, as opposed to the fifth aggregate, consciousness.

The Pali canon universally identifies that *vedana* involves the sensing or feeling of something as pleasant, unpleasant or neutral (see, for instance, SN 22). When contemporary authors elaborate on *vedana*, they define it similarly (see, for instance, Nhat Hanh, 1999, p. 178; Trungpa, 2001, p. 21; and, Trungpa, 2002, p. 126). The one exception is in Trungpa (1976), pp. 20-23, where he states that the "strategies or impulses" of "indifference, passion and aggression" are "part of the third stage [aggregate]," "guided by perception." (This section of Trungpa, 1976, is anthologized in Trungpa, 1999, pp. 55-58.)

Generally, *vedanā* is considered to not include "emotions." For example, Bodhi (2000a), p. 80, writes: "The Pali word *vedanā* does not signify emotion (which appears to be a complex phenomenon involving a variety of concomitant mental factors), but the bare affective quality of an experience, which may be either pleasant, painful or neutral." Perhaps somewhat similarly, Trungpa (1999), p.58, writes: "Consciousness [the fifth aggregate] consists of emotions and irregular thought patterns...."

Some translate this term as perception although this is typically the translation of *pratyakṣa* meaning the apprehension of sensibilia and not any subsequent judgement concerning them. The English word conception is more accurate, although this implies less a process and more the static end result (the mental state of holding a concept)), hence discrimination is preferred.

The Theravada Abhidhamma divides *saṅkhāra* into fifty mental factors (Bodhi, 2000a, p. 26). Trungpa (2001), pp. 47ff, following the Sarvastivada Abhidharma studied in Mahayana Buddhism, states that there are fifty-one "general types" of *samskara*.

Peter Harvey, *The Selfless Mind*. Curzon Press 1995, page 143-146.

In commenting on the use of "consciousness" in SN 22.3 [1], Bodhi (2000b), pp. 1046-7, n. 18, states: "The passage confirms the privileged status of consciousness among the five aggregates. While all the aggregates are conditioned phenomena marked by the three characteristics, consciousness serves as the connecting thread of personal continuity through the sequence of rebirths.... The other four aggregates serve as the 'stations for consciousness' (*vinnaṇatthitiyo*: see [SN] 22:53-54). Even consciousness, however, is not a self-identical entity but a sequence of dependently arisen occasions of cognizing; see MN I 256-60."

Harvey writes, "This is in contrast to *saññā*, which knows by grouping things together,

labeling them. This contrast can be seen in terms of the typical objects of these states: colours for saññā (S.III.87), but tastes (S.III.87) or feelings (M.I.292) for viññāṇa. While colours usually be immediately identified, tastes and feelings often need careful consideration to properly identify them: discernment and analysis are needed."

This conception of consciousness is found in the Theravada Abhidhamma (Bodhi, 2000a, p. 29).

While not necessarily contradicted by the Nikayas, this is a particularly Mahayana statement. For instance, Nhat Hanh (1999, pp. 180-1) states: "Consciousness here means store consciousness, which is at the base of everything we are, the ground of all of our mental formations." Similarly, Trungpa (2001, pp. 73-4) states that consciousness "is the finally developed state of being that contains all the previous elements....

[C]onsciousness constitutes an immediately available source of occupation for the momentum of the skandhas to feed on."

\* Dukkha: The first Noble Truth states that "in brief, the five bundles of grasping-fuel (upadana-skandha) are painful [dukkha]."[5][24] The five aggregates trigger suffering, pain or unsatisfactoriness. Everything that makes a person is a factor of dukkha, and these in Buddhist thought are not a source of pleasure but of sorrow.[15] Nirvana requires transcendence from all five skandhas and the sense objects.[5]

\* Impermanent: they come into being and dissolve.[15][25]

\* Anatta: each of the skandhas lacks a self and substantiality.[26] The aggregates are appearances which don't have an essence either separately or together, all that is perceived as an aggregate or a whole has no real existence.[27][22] This is the "non-self" (anatta) doctrine, and it holds that a belief in self is a source of Dukkha (suffering, pain, unsatisfactoriness).[28][29] The explicit denial of substantiality or essence in any of the five skandha appears in the early Buddhist texts: "All form is comparable to foam; all feelings to bubbles; all sensations are mirage-like; dispositions are like the plantain trunk; consciousness is but an illusion: so did the Buddha illustrate [the nature of the aggregates]."[30]

The physical, the personality factors (skandhas), and any sense of Self or I are a burden which the enlightened individual has dropped, thus becoming a "man of nothing", not clinging to anything internal or external.[32] The perfect state of enlightenment is one without any personality, no "I am" conceit, no physical identification, no intellectual identification, no identification in direct or indirect terms related to any of the five skandhas, because "a tathagata has abandoned the personality factors".[32] No one can find him because he has no "I", self or identity, while his citta expands to infinity; he is beyond the reach of the unenlightened human beings, as well as the army of the Mara (demon of death in Buddhism).[32]

Gethin: "To explain the khandhas as the Buddhist analysis of man, as has been the tendency of contemporary scholars, may not be incorrect as far as it goes, yet it is to fix upon one facet of the treatment of the khandhas at the expense of others. Thus A. B. Keith could write, "By a division which... has certainly no merit, logical or psychological, the individual is divided into five aggregates or groups." However, the five khandhas, as treated in the nikāyas and early abhidhamma, do not exactly take on the character of a formal theory of the nature of man. The concern is not so much the presentation of an analysis of man as object, but rather the understanding of the nature of conditioned



existence from the point of view of the experiencing subject. Thus at the most general level rūpa, vedanā, sañña, and are presented as five aspects of an individual being's experience of the world; each khandha is seen as representing a complex class of phenomena that is continuously arising and falling away in response to processes of consciousness based on the six spheres of sense. They thus become the five upādānakkhandhas, encompassing both grasping and all that is grasped." [39]

Bronkhorst: "The aim of the teaching of the Buddha is evidently not to discover the real self. On the contrary, the preoccupation with the true nature of the self has to be given up. Only then one is ready to follow the path shown by the Buddha. Seen from this practical point of view, the question as to the existence of the self is of minor importance. The main thing is that knowledge of the self plays no useful role on the Buddha's path to liberation. As certain non-Buddhist currents asserted a permanent self not subject to change because only knowledge of such a self could be useful to the attainment of liberation, it is probably justified to assume that the Buddha did not accept the existence of such a self." [45]

Bronkhorst: "Acquiring the insight that the various components of the person are not the self causes a wise and noble listener to turn away from material form, and so on; as a result he becomes free from desire and attains liberation." [45]

The Pāli word dhātu is used in multiple contexts in the Pāli canon: For instance, Bodhi (2000b), pp. 527–28, identifies four different ways that dhātu is used including in terms of the "eighteen elements" and in terms of "the four primary elements" (catudhātu).

The first five sense organs (eye, ear, nose, tongue, body) are derivatives of form.

The sixth sense organ (mind) is part of consciousness.

The first five sense objects (visible forms, sound, smell, taste, touch) are also derivatives of form.

The sixth sense object (mental object) includes form, feeling, perception and mental formations.

The six sense consciousnesses are the basis for consciousness. [48]

According to Bikkhu Bodhi, the Maha-punnama Sutta, also called The Great Full-moon Night Discourse, describes the impermanence of the aggregates to assert that there is no self, and the right discernment is, "this is not mine, this is not my self, this is not what I am". From Maha-punnama Sutta

[Buddha:] "It's possible that a senseless person — immersed in ignorance, overcome with craving — might think that he could outsmart the Teacher's message in this way: 'So — form is not-self, feeling is not-self, perception is not-self, fabrications are not-self, consciousness is not-self. Then what self will be touched by the actions done by what is not-self?' Now, monks, haven't I trained you in counter-questioning with regard to this & that topic here & there? What do you think — Is form constant or inconstant?"

"Inconstant, lord." "And is that which is inconstant easeful or stressful?" "Stressful, lord." "And is it fitting to regard what is inconstant, stressful, subject to change as: 'This is mine. This is my self. This is what I am'?"

[Monks:] "No, lord."

"... Is feeling constant or inconstant?" "Inconstant, lord."...

"... Is perception constant or inconstant?" "Inconstant, lord."...

"... Are fabrications constant or inconstant?" "Inconstant, lord."...

"What do you think, monks — Is consciousness constant or inconstant?" "Inconstant, lord." "And is that which is inconstant easeful or stressful?" "Stressful, lord." "And is it fitting to regard what is inconstant, stressful, subject to change as: 'This is mine. This is my self. This is what I am'?"

"No, lord."

"Thus, monks, any form whatsoever that is past, future, or present; internal or external; blatant or subtle; common or sublime; far or near: every form is to be seen as it actually is with right discernment as: 'This is not mine. This is not my self. This is not what I am.'

— Majjhima Nikaya iii 15, Translated by Thanissaro Bhikkhu[51]

Put another way, it is through the five skandhas that clinging occurs. See, for instance, the Samadhi Sutta (SN 22:5) (Thanissaro, 2006b).

The apparent distinctions between the nidana model and the khandha model are reduced when, instead of using the twelve-nidana model of the Samyutta Nikaya, chapter 12 (e.g., Thanissaro, 1997d), one compares the nine-nidana model of the Maha-nidana Sutta (DN 15) (Thanissaro, 1997a) where consciousness conditions name-and-form and name-and-form conditions consciousness.

Bodhi (2000b, pp. 839-840) writes: "Whereas the teaching on dependent origination is intended to disclose the dynamic pattern running through everyday experience that propels the round of rebirth and death forward from life to life, the teaching on the five aggregates concentrates on experience in its lived immediacy in the continuum from birth to death." Perhaps in a similar vein, Bodhi (2000b, pp. 762-3, n. 132) notes elsewhere that, according to the Samyutta Nikaya's subcommentary: "There are two kinds of origin, momentary origin (*khanika-samudaya*) and origin through conditions (*paccaya-samudaya*). A bhikkhu who sees one sees the other."

According to Nattier (1992), the Heart Sutra was originally composed in Chinese and later back-translated into Sanskrit. Thereafter, it became popular in India and later Tibet. Elements in this translation are not present in Chinese versions of this sutra.

See also Nhat Hanh (1988), p. 1, and Suzuki (1960), p. 26. Nhat Hanh (1988) adds to this first verse the sentence: "After this penetration, he overcame all pain." Suzuki (1960), p. 29, notes that this additional sentence is unique to Hsuan-chuang's translation and is omitted in other versions of the Heart Sutra.

In the Theravada canon, the English word "self-existence" is a translation of the Sanskrit word *svabhava*. "Svabhava" has also been translated as "self-nature" (Suzuki, 1960, p. 26), "separate self" (Nhat Hanh, 1988, p. 16) and "self-existence" (Red Pine 2004, p. 67). Note that Chinese versions of the Heart Sutra do not contain the notion of *svabhava*. When "emptiness of self" is mentioned, the English word "self" is a translation of the Pali word "atta" (Sanskrit, "atman").

Regarding the term *sabhāva* (Pali; Skt: *svabhāva*) in the Pali Canon, Gal (2003), p. 7, writes: "To judge from the suttas, the term *sabhāva* was never employed by the Buddha and it is rare in the Pali Canon in general. Only in the post-canonical period does it become a standard concept, when it is extensively used in the commentarial descriptions of the dhammas [conditioned mental and physical processes] and in the sub-commentarial exegesis.

The term *sabhāva*, though, does occur on various occasions in five canonical or para-canonical texts: the *Paṭisambhidāmagga*, the *Peṭakopadesa*, the *Nettipakaraṇa*, the *Milindapañha* and the *Buddhavaṇṇa*." <sup>15</sup>

Gal (p. 10) speculates that the use of the term *sabhāva* in the *Paṭisambhidāmagga* might be the earliest occurrence in Pali literature and quotes (p. 7, esp. n. 28) from this text (*Paṭis.* II 178) the application of the phrase *sabhāvena suññaṃ* (Pali for "empty of *sabhāva*") to each of the aggregates—at least superficially similar to an application of *svabhāva* in the *Prajnaparamita Hridaya Sutra* ("Heart Sutra") cited in this article.

This type of analysis of the aggregates (where ignorance conditions the five aggregates) might be akin to that described by the Twelve *Nidanas*.

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AI Overview

"Trantaloids" is a term used in ufology and conspiracy theories to describe a specific type of extraterrestrial being, often characterized as sociopathic and able to see in ultraviolet light. The concept appears in interviews with alleged remote viewers and is part of a larger framework of extraterrestrial lore, similar to other named alien species like the Anunnaki or Reptilians.

Origin: The term is used within certain paranormal and ufology communities, notably in discussions involving alleged remote viewers.

Characteristics: Trantaloids are described as intelligent but sociopathic extraterrestrials.

Abilities: They are said to have the ability to see in ultraviolet light and communicate over long distances.

Context: The term is part of the broader category of "alien races" and theories within ufology.

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AI Overview

Aphantasia is the inability to voluntarily form mental images, meaning a person can't "picture" things in their mind's eye, often describing their internal experience as an

empty or black space, though they still know facts about things. It's a variation in human experience, not typically a disorder, affecting roughly 1-4% of people, with some having complete aphantasia and others partial (dim or fleeting images). It can be congenital (from birth) or acquired (after brain injury) and can also affect other senses like sound, touch, smell, and taste.

#### Key characteristics

No mind's eye: Difficulty or inability to visualize, like imagining an apple or a familiar face.

Factual memory: People often remember facts ("I know my grandmother's face") but not the visual picture of it.

Spectrum of experience: Ranges from complete lack of imagery (complete aphantasia) to very weak or fragmented images (partial aphantasia).

Multi-sensory aphantasia: Some experience limitations in other senses, like auditory (no music in mind) or tactile (no touch sensations).

Discovery: Many people don't realize they have it until they learn others visualize vividly, often thinking "picture this" is a metaphor.

#### Causes and connections

Neurological basis: Weaker connections between front (decision-making) and back (visual processing) brain areas.

Congenital vs. Acquired: Present from birth or develops after trauma, stroke, or brain injury.

Dreams: Many with aphantasia still have visual experiences in their dreams.

Strengths: Some find advantages, such as less rumination or being more present, and creativity can stem from non-visual concepts.

#### Not a disability

It's considered a neurodiversity, a different way of experiencing the world rather than a disorder.

It doesn't prevent success in many fields; some scientists, writers, and artists have aphantasia.

Aphantasia: The People Without a Mind's Eye | 'Out of Mind ...

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Aphantasia is the inability to voluntarily visualize mental images. A representation of how people with differing visualization abilities might picture an ...

Hyperphantasia

Charcot–Wilbrand syndrome

Yoon Ha Lee

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People also ask

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How does a person with aphantasia think?

How rare is aphantasia?

Feedback

Things to know

Diagnosis

.

How is aphantasia diagnosed?

Impact

.

How does aphantasia affect daily life?

Causes

.

What causes aphantasia?

Symptoms

.

What are the symptoms of aphantasia?

Prevalence

.

What is the prevalence of aphantasia?

What is Aphantasia? Understanding Mental Imagery ...

Aphantasia Network

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Aphantasia is the inability to voluntarily visualize mental images — a neurological variation that affects how people think, dream, remember, and learn. When ...

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Mar 28, 2024 — People who can't visualise an image in their mind's eye are less likely to remember the details of important past personal events or to recognise faces.

Videos

Aphantasia: Why Some People Can't 'See' Mental Images

YouTube · Quanta Magazine

Jan 31, 2025

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8:30

Aphantasia is the inability to generate mental imagery. It's not a disorder but a diversity of human cognitive functioning.

Can't Picture It: What is Aphantasia?

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Sep 15, 2025

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4:10

Aphantasia is a new name for an old phenomenon it was first recognized by Francis Gton in 1880 with him relating someone without a mind's eye.

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10 key moments in this video

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Vividness of Visual Imagery Questionnaire

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How vivid is your mind's eye? The Vividness of Visual Imagery Questionnaire (VVIQ) explores the vividness of your visual imagination. It was created in 1973 ...

For the non visualisers

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by R Krempel · 2024 · Cited by 36 — Aphantasia is a condition frequently characterized as the impaired ability to create voluntary mental images. Mental images are here understood as experiences ...

Some People Can't See Mental Images. The ...

The New Yorker

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Oct 27, 2025 — After consulting with a classicist friend, he decided on “aphantasia,” phantasia being defined by Aristotle as the ability to conjure an image ...

Discovering aphantasia

Austin Kleon

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Next

Aphantasia

Aphantasia - A Blind Mind's Eye | The Creative Revolution

Aphantasia: Tests, Causes, & Symptoms

Aphantasia. Why Can't I See in My Mind's Eye? | by Pauline ...

Aphantasia is the inability to voluntarily visualize mental images. The phenomenon was first described by Francis Galton in 1880, but it has remained relatively unstudied.

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Not to be confused with aphasia, the inability to formulate language.

A representation of how people with differing visualization abilities might picture an apple in their mind. The first image is bright and photographic, levels 2 through 4 show increasingly simpler and more faded images, and the last—representing complete aphantasia—shows no image at all.

Aphantasia (/ˌæfænˈteɪzə/ ⓘ AY-fan-TAY-zhə, /ˌæfænˈteɪzə/ AF-an-TAY-zhə) is the inability to voluntarily visualize mental images.[1]

The phenomenon was first described by Francis Galton in 1880,[2] but it has remained relatively unstudied. Interest in the phenomenon was renewed after the publication of a study in 2015 by a team led by the neurologist Adam Zeman of the University of Exeter. [3] Zeman's team coined the term aphantasia,[4] derived from the ancient Greek word *phantasia* (φαντασία), which means 'appearance/image', and the prefix *a-* (ἀ-), which means 'without'. [5] People with aphantasia are called aphantasics,[6] or less commonly aphants[7] or aphantasiacs.[8]

Aphantasia can be considered the opposite of hyperphantasia, the condition of having extremely vivid mental imagery.[9][10]

## History

The phenomenon was first described by Francis Galton in 1880, in a statistical study on mental imagery.[2] Galton wrote:

To my astonishment, I found that the great majority of the men of science to whom I first applied, protested that mental imagery was unknown to them, and they looked on me as fanciful and fantastic in supposing that the words "mental imagery" really expressed what I believed everybody supposed them to mean. They had no more notion of its true nature than a colour-blind man who has not discerned his defect has of the nature of colour.[2]

In 1897, the psychologist Théodule-Armand Ribot reported a kind of "typographic visual type" imagination, consisting in mentally seeing ideas in the form of the corresponding printed words.[11] As paraphrased by Jacques Hadamard,

The first discovery of this by Ribot was the case of a man whom he mentions as a well-known physiologist. For that man, even the words "dog, animal" (while he was living among dogs and experimenting on them daily) were not accompanied by any image, but were seen by him as being printed. Similarly, when he heard the name of an intimate friend, he saw it printed and had to make an effort to see the image of this friend... Moreover, according to Ribot, men belonging to the typographic-visual type cannot conceive how other people's thought can proceed differently.[12]

The phenomenon remained largely unstudied until 2005, when Professor Adam Zeman of the University of Exeter was approached by a man who seemed to have lost the ability to visualize after undergoing minor surgery.[13] Following the publication of this patient's case in 2010,[14] a number of people approached Zeman reporting a lifelong inability to visualize. In 2015, Zeman's team published a paper on what they termed "congenital aphantasia"—a form of aphantasia in which individuals have never had the ability to generate voluntary mental images—[3] sparking renewed interest in the phenomenon.[4]

The idea of aphantasia was popularised on social media in 2020, through posts which asked the reader to imagine a red apple and rate their "mind's eye" depiction of it on a

scale from 1 (photographic visualisation) through to 5 (no visualisation at all). Many people were shocked to learn that their own ability or inability to visualise objects was not universal.[15]

## Research

Zeman's 2015 paper used the Vividness of Visual Imagery Questionnaire (VVIQ), developed by David Marks in 1973, to evaluate the quality of the mental image of 21 self-diagnosed and self-selected participants. He found that most aphantasics lack voluntary visualizations only; the majority of test subjects did report involuntary visualizations such as dreams.[3] Along with Zeman's reports of involuntary mental imagery occurring during dream states, a 2020 study found that individuals with aphantasia experience less control and fewer sensory emotions during dreams compared to those with a strong ability to generate voluntary mental images while awake.[16] The lack of intense emotions is thought to result from a functional trade-off[17]—competition between two neural systems—occurring between semantic information and sensory qualities, which is strongly associated with individuals who have low VVIQ scores.[16]

In 2017, a paper measured the sensory capacity of mental imagery using binocular-rivalry (BR) and imagery-based priming and found that when asked to imagine a stimulus, the self-reported aphantasics experienced almost no perceptual priming, compared to those who reported higher imagery scores where perceptual priming had an effect.[18] In 2020, Keogh and Pearson published another paper illustrating measurable differences correlated with visual imagery, this time by indirectly measuring cortical excitability in the primary visual cortex (V1).[19]

In 2018, a study analyzing the visual working memory of a person with aphantasia found that mental imagery has a "functional role in areas of visual cognition, one of which is high-precision working memory" and that the person with aphantasia performed significantly worse than controls on visual working memory trials requiring the highest degree of precision, and lacked metacognitive insight into their performance.[20]

A 2020 study concluded that those who experience aphantasia also experience reduced imagery in other senses, and have less vivid autobiographical memories.[16] In addition to deficits in autobiographical memories compared to people without aphantasia, people with aphantasia had significant differences in all aspects of memory when compared to the performance of people without aphantasia.[21] A 2021 study concluded that while those with aphantasia reported fewer objects in drawing recall, they showed high spatial memory concerning controls in drawings, with these differences only appearing during the recall stage of the study.[22]

In 2021, a study by Keogh, Wicken, and Pearson focusing on the role of visual imagery in visual working memory tasks specifically considered the strategies people with aphantasia use in these tasks. It found no significant differences in visual working memory task performances for those with aphantasia when compared to controls.

However, significant differences were found in the reported strategies used by aphantasic individuals across the memory tasks.[23]

In 2021, a study that measured the perspiration (via skin conductance levels) of participants in response to reading a frightening story and then viewing fear-inducing images found that participants with aphantasia, but not the general population, experienced a flat-line physiological response during the reading experiment, but found no difference in physiological responses between the groups when participants viewed fear-inducing images. The study concluded the evidence supported the emotional amplification theory of visual imagery.[24]

In 2021, a study found that people with aphantasia have slower reaction times than people without aphantasia in a visual search task in which they were presented with a target and a distractor. But both groups saw a similar reduction in reaction time when primed with the color of the target compared to if primed with the color of the distractor or a third color, suggesting that people with and without aphantasia were primed in the same way. The researchers hypothesized that this may be because the color of the prime is not relevant to the search task. To explore this, a follow-up experiment by the same researchers found people without aphantasia saw a greater reduction in reaction time when selecting the target from two images compared to from two words. At the same time, both people with and without aphantasia were faster in the image task than the word task.[25] A 2023 study explored more natural scenarios and found that aphantasics are slower at solving hidden object pictures.[26]

In 2021, a study relating aphantasia, synesthesia, and autism was published that found that people with aphantasia reported more autistic traits than people without aphantasia, with weaknesses in imagination and social skills.[27][28]

In addition to congenital aphantasia, there have been cases reported of acquired aphantasia—characterized by new onset of diminished voluntary visual imagery—due either to brain injury or psychological causes.[29][30] In 2021, a study reported on acquired aphantasia following a case of COVID-19.[31][32]

A 2021 study aimed to provide insights into the correlation between auditory and visual imagery. The research, conducted on a sample of 128 participants, included 34 individuals who self-identified as having aphantasia. The study found a strong association between auditory imagery (measured using the Bucknell Auditory Imagery Scale-Vividness, BAIS-V) and visual imagery (measured using the Vividness of Visual Imagery Questionnaire-Modified, VVIQ-M). They found most people who self-reported having aphantasia also reported weak or entirely absent auditory imagery. Moreover, participants lacking auditory imagery tended to be aphantasic. The authors proposed a new term, "anauralia", to describe the absence of auditory imagery, particularly the lack of an "inner voice".[33] A subsequent study, corroborated this finding, showing that the majority of a sample of people recruited on the basis of visual aphantasia also reported having reduced auditory imagery. However, this self-reported reduction in auditory

imagery was not evident in performance on tasks thought to require auditory imagery, including a musical pitch imagery and voice recognition task.[34]

A 2022 study estimated the prevalence of aphantasia among the general population by screening undergraduate students and people from an online crowdsourcing marketplace through the Vividness of Visual Imagery Questionnaire. They found that 0.8% of the population was unable to form visual mental images, and 3.9% of the population was either unable to form mental images or had dim or vague mental imagery.[35] Sitek and Konieczna have shown that its progressive form may be a harbinger of dementia.[36] A group of authors interviewed people with aphantasia about their lives and found that they generated fewer episodic details than controls for both past and future events, indicating that visual imagery is an important cognitive tool for dynamic retrieval and recombination of episodic details.[37]

There have been various approaches to find a general theory of aphantasia or incorporate it into current philosophical, psychological and linguistic research. Blomkvist[38] has suggested that aphantasia is best explained as a malfunction of processes in the episodic system and sees it as an episodic system condition. Nanay[39] has argued that at least some instances of this condition can be explained in terms of unconscious mental imagery.[clarification needed] Alternative explanations for aphantasia have also been proposed in the scientific literature. Lorenzatti[40] provides a summary of these views. Aphantasia also has been studied from philosophical perspectives. Šekrst[41] proposed that a gradual range of perceptions and mental images, from aphantasia to hyperphantasia, influences philosophical analysis of mental imagery from a fuzzy standpoint, along with influence on linguistics and semiotics. Whiteley[42] argues that a modified theory of dreaming has to incorporate aphantasia, by involving the claim that dreams are a non-voluntary form of imagination. Additionally, research by Boran[43] into romantic desire has shown a potential link between vividness of mental imagery and romantic feelings, suggesting that mental imagery may also play a role in emotional memory and relationships.

In 2024, a research team led by Jonathan Rhodes from the University of Plymouth assessed the imagery abilities of over 300 athletes finding a small sample of 27 who had aphantasia or low imagery abilities. The researchers developed a training program over six weeks to improve imagery ability, finding that it can be significantly improved for the majority of participants.[44] In addition, the research of Keogh and Pearson's[45] follow-up with over 50 participants further confirmed the absence of sensory imagery in aphantasia, adding evidence to the field of study. Zeman[46] also proposes that alterations in connectivity between the frontoparietal and visual networks may provide the neural substrate for extreme variations in visual imagery.

Some people with aphantasia have acquired visual mental imagery after using psychedelics like ayahuasca or psilocybin.[47]

Notable people with aphantasia

Jonathan Blow, American video game designer and programmer[48]  
Ed Catmull, co-founder of Pixar and former president of Walt Disney Animation Studios. Catmull surveyed 540 colleagues from Pixar about their mental visualization and found that the production managers tended to have stronger visualizations than the artists.[49]  
Gordon Clark, 20th-century American Presbyterian theologian and philosopher. This may have influenced his development of an epistemology that did not rely on physical sensation but on rational propositional revelation from the Bible.[50]  
Laura Kate Dale, English writer and activist[51]  
Wolfe Glick, professional eSports player[52]  
John Green, American author, educator, and YouTube influencer[53]  
James Harkin, British podcaster and television writer[54]  
Richard Herring, British comedian and podcaster[55]  
Aldous Huxley, English writer and philosopher, who described in *The Doors of Perception* a lifelong near-absence of visual imagination, a profile strongly consistent with modern descriptions of aphantasia.[56][57]  
Penn Jillette, American magician and television personality[58]  
Glen Keane, animator, author, and illustrator[59]  
Lynne Kelly, writer on mnemonics and memory techniques. Kelly has reported that she has aphantasia, but notes that she still uses personal memory methods, such as the memory palace, which are typically thought to rely on visual memory.[60]  
Mark Lawrence, fantasy author[61]  
Yoon Ha Lee, science fiction author[62]  
Laura Lexx, comedian[63]  
Emad Mostaque, founder and the CEO of Stability AI[64]  
Bob Muyskens, podcast host[65]  
Derek Parfit, British philosopher. His aphantasia may have influenced his longtime interest in photography.[66][67]  
Hollis Robbins, academic, essayist, and poet[68]  
Blake Ross, co-creator of the web browser Mozilla Firefox.[69] In April 2016, Ross published an essay describing his own aphantasia and his realization that not everyone experiences it.[70][71] The essay gained wide circulation on social media and in a variety of news sources.[72][73]  
Michelle Sagara, fantasy author[74]  
Sharon Slater, Irish writer and historian[75]  
Craig Venter, geneticist[76]  
Matthew Yglesias, journalist and co-founder of Vox[77]

See also

Charcot–Wilbrand syndrome

Creative visualization – Purposeful visualisation for neuropsychological, physiological or social effects

Number form – Mental map of numbers

Prefrontal synthesis – Conscious process of synthesizing mental images

Prosopagnosia – Lowered ability to recognize people by their faces

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vte

Mental processes

Cognition

AssociationAwarenessCognitive flexibilityCognitive libertyForecasting  
affectiveForesightComprehensionConsciousnessCritical thinkingDecision-  
makingImaginationIntuitionProblem solving methodsstrategiesProspection

Perception

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Cosmic ocean

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Not to be confused with world ocean.

Vishnu and Lakshmi on Shesha over the cosmic ocean accompanied by Brahma and all

other deities and sages

A cosmic ocean, cosmic sea, primordial waters, or celestial river is a mythological motif that represents the world or cosmos enveloped by a vast primordial ocean. Found in many cultures and civilizations, the cosmic ocean exists before the creation of the Earth. From the primordial waters the Earth and the entire cosmos arose. The cosmic ocean represents or embodies chaos.

The cosmic ocean takes form in the mythology of Yazidism, Ahl-e Haqq, Alevism, Ancient Egyptian mythology, Ancient Greek mythology, Canaanite mythology, Ancient Hindu mythology, Ancient Iranian, Sumerian, Zoroastrianism, Ancient Roman mythology and many other world mythologies.

The primacy of the ocean in some creation myths corresponds to the cosmological model of land surrounded by the world ocean. The sky is often thought of as something like the upper sea. The concept of a watery chaos also underlies the widespread motif of the worldwide flood that took place in early times. The emergence of earth from water and the curbing of the global flood or underground waters are usually presented as a factor in cosmic ordering.

### Background

In ancient creation texts, the primordial waters are often represented as having filled the entire universe and are the first source of the gods. The act of creation is the establishment of an inhabitable space separate from the enveloping waters.[1] The cosmic ocean is the shape of the universe before creation.[2]

The ocean is boundless, unordered, unorganized, amorphous, formless, dangerous, terrible. In some myths, its cacophony is noted, opposed to the ordered rhythm of the sea.[3]

Chaos can be personified as water or by the unorganized interaction of water and fire, The transformation of chaos into order is also the transition from water to land.[4] In many ancient cosmogonic myths, the ocean and chaos are equivalent and inseparable from each other. The ocean remains outside space even after the emergence of the land. At the same time, the ability of the ocean to generate is realized in the appearance of the Earth from it and in the presence of a mythological creature in the ocean that promotes generation or, on the contrary, zealously defends the "old order" and prevents the beginning of the chain of births from the ocean.[3]

### Common themes

From the Mari creation myth, Kugu-Yumo and his brother Jōn (Kijamat) in the form of drakes create peace on the waters of the oceans

Yu. E. Berezkin and E. N. Duvakin generalize the motif of primary waters as follows: "Waters are primary. The Earth is launched into the water, appears above the water, grows from a piece of solid substance placed on the surface of the water or liquid mud,

from an island in the ocean, is exposed when the waters subsided, etc." [5]

The idea of the primacy of the ocean as an element, from the bowels of which the Earth arises or is created, is universally prevalent. [1] This representation is present in many mythologies of the world. [6]

In Asia and North America, the Earth-diver myth is found. In this myth a creator god dives into the cosmic ocean to bring up and form the Earth. [7] A diving bird, catching a lump of earth from the primordial ocean, often appears in the mythologies of the Native Americans and Siberian peoples. In totemic myths, bird people are often presented as ancestors. Eggs are a common theme in creation myths. A waterfowl extracts silt from the sea, from which land is gradually created. [7]

In Polynesian mythology, Maui fishes islands. In Scandinavian mythology, the gods raise the Earth, and Thor catches Jörmungandr from the bottom of the ocean. In ancient Egyptian mythology, the Earth itself comes to the surface in the form of a mound. In Hindu Puranas, when Hiranyaksha hid the Earth in the cosmic ocean, Lord Vishnu took the Varaha (boar) avatar to save it.

In the mythologies of many Asian countries, in which there is an image of an endless and eternal primordial ocean or sea, there is a motif of the creation of the Earth by a celestial being descending from the sky and interfering with the water of the ocean with an iron club, spear or other object. This results in condensation which gives rise to the Earth. In Japanese mythology, the islands of Japan arose from dirty foam raised by mixing the waters of the ocean with a spear of gods (Izanagi and Izanami). In the mythologies of the Mongolian peoples, the role of the compactor of the ocean waters is played by the wind, which creates a special milky substance out of them, which then becomes the earth's firmament. According to the Kalmyks, plants, animals, people and deities were born from this milky liquid. Hindu Mythology has a similar myth about the Churning of the Ocean.

A Lithograph showing the Churning of the Ocean in Hindu mythology.

Myths about the world's oceans are universally accompanied by myths about its containment when the earth was already created, and myths about the attempts of the ocean to regain its undivided dominance. In Chinese mythology, there is the idea of a giant depression or pit that determines the direction of the ocean waters and takes away excess water. In many mythologies there are numerous narratives regarding the flood.

The opposition of two types of myths is known (for example, in Oceania) – about the Earth sinking in the ocean, and about the retreat of the ocean. An example of the first type is the legend about the origin of Easter Island, recorded on this island. In the creation myth of the Nganasan people, at first the Earth was completely covered with water, then the water subsides and exposes the top of the Shaitan ridge Koika-mou. The first two people fall to this peak – a man and a woman. In the myth of creation of the

Tuamotu Islands, the creator Tāne, "Spilling Water", created the world in the waters of the lord of the waters, Pune, and invoked the light that initiated the creation of the Earth.  
[3]

The motif of the cosmogonic struggle with the serpent and its killing is widespread in terms of suppressing water chaos. The serpent in most mythologies is associated with water, often as its abductor. It threatens either with a flood or a drought, that is, a violation of the measure, the water "balance". Since the cosmos is identified with order and measure, chaos is associated with the violation of measure. The Egyptian Ra fights and kills the underground serpent Apep, the Hindu Indra fights and kills the demon Vritra, who took the form of a snake, the Mesopotamian Enki, Ninurta and Inanna fight with Kur and kill him, the Iranian Tishtry (Sirius) – with the deva Aposhi Tishtry kills Aposhi. The killed Apep, Vritra, Kur and Aposhi hold back the cosmic waters. Marduk defeats and kills the progenitors Tiamat and Apsu before resurrecting them back together, the deities of the dark waters of chaos, who has taken the form of snakes. There are stories in Canaanite mythology about the struggle of the Canaanite deities with monstrous snakes, which also represents water chaos (Rahab, Tehom, Leviathan) and these monstrous snakes are all killed by the Canaanite deities. Yu the Great's heroic struggle with the cosmic flood ends with the killing of the insidious owner of the water Gungun and his "close associate" – the nine-headed Xiangliu.

The transition from the formless water element to land is the most important act necessary for the transformation of chaos into space. The next step in the same direction is the separation of the sky from the Earth, which, perhaps, essentially coincides with the first act, given the initial identification of the sky with the oceans. But it was precisely the repetition of the act – first down, and then up – that led to the allocation of three spheres – earthly, heavenly and underground, which represents the transition from binary division to trinity. The middle sphere, the earth, opposes the watery world below and the heavenly world above. A trichotomous scheme of the cosmos arises, including the necessary space between Earth and sky. This space is often represented as a cosmic tree. Earth and sky are almost universally represented as feminine and masculine, a married couple standing at the beginning of a theogonic or theocosmogonic process. At the same time, the feminine and masculine principles are associated with the element of water and with chaos; usually they are conceived on the side of "nature" rather than "culture."

Mythical creatures from chaos, defeated and victorious, shackled and released, overthrown and restored, always continue to exist on the outskirts of space, along the shores of the oceans, in the underground "lower" world, in the above ground "upper" world. Other evil creatures were killed in these mythologies by the deities also. So, in Scandinavian mythology, frost giants precede time, and in space they are located on the outskirts of the Earth's circle, in cold places, near the oceans.[4]

In world cultures  
Egyptian mythology

Main article: Nu (mythology)

The mystical Spell 17, from the Papyrus of Ani. The vignette illustrates (left) Nu. In Ancient Egyptian mythology, in the beginning the universe only consisted of a great chaotic cosmic ocean, and the ocean itself was referred to as Nu. In some versions of this myth, at the beginning of time, Mehet-Weret, portrayed as a cow with a sun disk between her horns, gives birth to the Sun, said to have risen from the waters of creation and to have given birth to the sun god Ra in some myths.[8] The universe was enrapt by a vast mass of primordial waters, and the Benben, a pyramid mound, emerged amid this primal chaos. There was a lotus flower with Benben,[9] and this when it blossomed emerged Ra.[10] There were many versions of the Sun's emergence, and it was said to have emerged directly from the mound or from a lotus flower that grew from the mound, in the form of a heron, falcon, scarab beetle, or human child.[11][12] In Heliopolis, the creation was attributed to Atum, a form of the sun god Ra, who was said to have existed in the waters of Nu as an inert potential being.

The concept of chaos is etymologically associated with darkness, but primarily about water chaos in the form of the primary ocean (Nu) or, in the Hermopolitan version, four divine pairs of primordial deities representing its different aspects. The primary hill is place of the sun god Ra and the sun goddess Raet as the creator deities in Heliopolis. Water chaos is opposed by the first earthly mound protruding from it, with which Ra is associated in Heliopolis, and in Memphis and Thebes, Ptah with Sekhmet and Amun with Amunet as the creator deities there respectively. Initially, the existing ocean contains the two primordial deities who are called as the "father and mother of the deities" Nu and Nunnet. In the historical era, the ocean, which was placed underground, gave rise to the river Nile. In the Heracleopolis version of the myth, an internal connection between the ocean and chaos is noted.[3]

Graeco-Roman mythology

Main article: Oceanus

The Reconstruction of Hecataeus' map showing Asia, Africa and Europe with the inner seas and the outer ocean.

The ideas of ancient Graeco-Roman mythology about the ocean demonstrate a typologically more advanced stage, when the image of the Ocean becomes the object of "pre-scientific" research and natural philosophy. The Ocean is presented first of all as the greatest world river (Hom. Il. XIV 245),[3] surrounding the Earth and the sky with the seas,[13] giving rise to all rivers, springs, sea currents and seas in the world (XXI 196), the shelter of the Sun, Moon, stars and planets, from which they all rise from the ocean and set in it (VII 422; VIII 485). The Ocean River touches the sea, but does not mix with it.[3] In its extreme ends at the west, east, north, south, the ocean washes the boundaries between the world of life and the world of death.[14]

In Homer, The Ocean is the world encircling river. In Theogony 282, Hesiod presents a folk etymology of the name Pegasus as derived from πηγῇ - pēgē 'spring, well', referring



to "the Pegai of Oceanus, where he was born" for a divine winged mythical horse of that name in Greco-Roman mythology.[15] In Homer and Hesiod, Oceanus and Tethys are divine living beings, the progenitors of many deities (Hom. Il. XIV 201, 246), but Oceanus and Tethys also had parents. According to Hesiod, Oceanus and Tethys is the son and daughter of the primordial deities Uranus and Gaia (Theogony 133).[3] Oceanus is the brother and husband of Tethys, with whom he and she gave birth to all the rivers and waters[13]– three thousand daughters – Oceanids (Theogony 346–364) and three thousand sons – Potamids (Theogony 367–370).[14] The deities revere Oceanus and Tethys as aged parents, take care of him and her, although he and she live in solitude.[3] Oceanus and Tethys did not participate in the Battle of the Titans and the Olympians against the Olympians and the Titans and thus retained their power and trust of the Olympians and Titans and the other deities. Oceanus and Tethys are the father and mother of Metis, the wise wife of Brontes and mother of Athena and Porus with him (Apollod. I 2, 1). Known for their peacefulness and kindness (Euripides said that they tried unsuccessfully to reconcile Prometheus with the Olympians before Prometheus was freed by the Olympians and Titans and others later on; Prometheus Bound 284–396).[14] Herodotus contains criticism of the mythological concept of Oceanus as a poetic invention (Herodot. II, 23, cf. also IV 8, 36, etc.). Euripides called the ocean as the sea (Orestes 1376). Since that time, a tendency has been established to distinguish between a large outer sea – which is the ocean – and the inland seas. Later, Euripides begins to divide the ocean into parts: the Ethiopian Ocean, Eritrean Ocean, Gallic Ocean, Germanic Ocean, Arctic Ocean, etc.[3]

## Hindu mythology

Main article: Garbhodaka Ocean

In Hindu mythology, there is an idea of darkness and the abyss, but also of the primary waters generated by night or chaos.[4] Ancient Indian myths about the oceans contain both typical and original motifs. In the tenth mandala of the Rigveda, the original state of the universe is presented as the absence of existing and non-existent, airspace and sky above it, death and birth, day and night, but the presence of water and disorderly movement. In the waters of the eternal ocean, there was a life-giving principle generated by the power of heat and giving birth to everything else. Another mandala of the Rigveda contains a different version: "Law and truths were born from the kindled heat.", hence the surging ocean. Out of the tumultuous ocean, a year was born, distributing days and nights. "Rigveda" repeatedly mentions the generative power of the ocean ("multiple," it roars at its first spread, giving rise to creations, the bearer of wealth), its thousands of streams flowing from the depths, it is said that the ocean is the spouse of rivers. The cosmic ocean forms the frame of the cosmos, separating it from chaos. The ocean is controlled by the god Varuna and the goddess Varuni. Varuna and Varuni is associated both with the destructive and uncontrolled power of the waters of the oceans, and with fruitful waters that bring wealth to people.[3]

The churning of the cosmic ocean contains the motif of the confrontation between the elements of water and fire. As a result of the rapid rotation, a whorl lights up – Mount Mandara, but trees and grasses emit their juices into the drying ocean. This motif

echoes the Tungus myths about the creation of the Earth by a celestial being, which, with the help of fire, dries up part of the primordial ocean, thus reclaiming a place for the Earth. The motif of the struggle of water and fire in connection with the theme of the world ocean is also present in other traditions.

Hindu mythology is characterized by the image of the creator god Vishnu and the creator goddess Lakshmi, floating on the primary waters in a lotus flower, on the snake Shesha with Brahma, Shiva, Sarasvati, Parvati also are creator deities in the primary waters together also.[4]

Kurma, also known as the Turtle, is the second avatara of Vishnu in the Dashavatara who is depicted as churning the cosmic ocean during Samudra Manthana.[16] Vishnu takes the form of a turtle to help hold the stick used to churn the cosmic ocean during this event in Hindu mythology.[16]

#### Jewish view

According to the biblical account of the creation of the world in Book of Genesis, the upper oceans (Hebrew: המים העליונים, romanized: HaMaim HaElionim) refers to the waters located above the firmament. These waters were separated by God from the lower oceans (Hebrew: המים התחתונים, romanized: HaMaim HaTahtonim) on the second day of creation, as described in the genesis creation narrative. The firmament (sky) is acting as a boundary between the waters above and the waters below the oceans.[17]

#### Persian mythology

Fraxkard (Middle Persian: pl'hwklt, Avestan: Vourukaša; also called Warkaš in Middle Persian) is the cosmic ocean in Iranian mythology.[18]

#### Canaanite view

In the first creation story in the Bible the world is created as a space inside of the water or Tehom, and is hence surrounded of it, "And Yahweh said, 'Let there be a firmament in the midst of the waters, and let it divide the waters from the waters.'" (Genesis 1:6).

In Exodus, the cosmic ocean is Yam Sûf and is mentioned in Exodus 15:4. The army of the Pharaoh was thrown into this "Sea of Extinction" and the entire army of the Pharaoh was killed in it. Yahweh rises Egypt up from this sea.[19] King Sargon II is said to have washed his weapons in this cosmic ocean. The cosmic ocean is mentioned again in Joshua 1:4 and signified as a boundary of the universe.[19]

In the true story of Noah's Ark, for forty days and nights of rain, the cosmic ocean floods the Earth before receding away back into their original place.[19]

#### Sumerian mythology

Apsu (cuneiform scripture)

In Sumerian mythology, there was an image of the original sea abyss – Apsu, on the site of which the most active of the gods Enki, representing the earth, fresh water and agriculture on irrigated lands, made his home.[4] In the beginning, the entire space of the world was filled with an ocean that had neither beginning nor end. It was probably believed that he was eternal. In its bowels lurked the foremother Nammu. In her womb arose a cosmic mountain in the form of a hemisphere, which later became the earth. An arc of shiny tin, encircling the hemisphere vertically, later became the sky. In the Babylonian version, in the endless primordial Ocean there was nothing but two monsters – the forefather Apsu and foremother Tiamat.[3]

Zoroastrianism

Vourukasha is the name of a heavenly sea in Zoroastrian mythology. It was created by Ahura Mazda and in its middle stood the Harvisptokhm or the "tree of all seeds".[20]

According to the Vendidad, Ahura Mazda sent the clean waters of Vourukasha down to the earth in order to cleanse the world and sent the water back to the heavenly sea Puitika. This phenomenon was later interpreted as the coming and going of the tide. At the centre of Vourukasha was located the Harvisptokhm or "tree of all seeds", which contains the seeds of all plants in the world. There is a bird Sinamru on the tree which causes the bough to break and seeds to sprinkle all around when it alights.[20]

At the center of the Vourukasha also grows the Gaokerena or "White Haoma", considered to be the "king of healing plants".[21] It is surrounded by ten thousand other healing plants.[20]

In later times, Vourukasha was connected with the Persian Sea and the Puitika with the Gulf of Oman.[20]

See also

Ap (water)

Arche

Danava (Hinduism)

Danu (Asura)

Erlik

Firmament

Heh (god)

Heryshaf

Rasā

Samudra

Sea (astronomy)

Sea of Suf

Styx

Tehom

Unhcegila

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vte

Genesis 1

Noted verses

Genesis 1:12345

Divine figures

God / Elohim Jewish conceptionChristian conception"Spirit of God" Jewish conceptionChristian conception

Creation

Creationism

Young Earth creationismOld Earth creationism Day-age creationismGap

creationismProgressive creationismFramework interpretationCreatio ex nihiloSpecial creation

HeavenTehomYomFirmament

Phrases

"In the beginning"То́ху ва-бо́ху (original translation)"Let there be light""According to its kind""Image of God""Be fruitful and multiply"

Characters

Adam and Eve AdamEve

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Illustration by Wenceslas Hollar: the spirit of God (with Tetragrammaton) moves over the face of the deep.

Tehom (Hebrew: תְּהוֹם *təhôm*) is a Northwest Semitic and Biblical Hebrew word meaning "the deep" or "abyss" (literally "the deeps").<sup>[1]</sup> It is used to describe the primeval ocean and the post-creation waters of the earth. It is a cognate of the Akkadian words *tiāmtum* and *tāmtum* as well as Ugaritic *t-h-m* which have similar meanings.<sup>[2]</sup> According to a theological dictionary, *tehom* derives from a Semitic root which denoted the sea as a non-personified entity with mythological import.<sup>[3]</sup>

Genesis

Tehom is mentioned in Genesis 1:2, where it is translated as "deep":

And the earth was without form, and void; and darkness was upon the face of the deep.  
And the Spirit of God moved upon the face of the waters.

—King James Version

The same word is used for the origin of Noah's flood in Genesis 7:11:

In the six hundredth year of Noah's life, in the second month, the seventeenth day of the month, the same day were all the fountains of the great deep broken up, and the windows of heaven were opened.

Gnosticism

See also: Yam Suph

Gnostics used Genesis 1:2 to propose that the original creator deity, called the Plérōma "Totality" or Bythós "Deep," preexisted Elohim and gave rise to such later divinities and spirits by way of emanations, progressively more distant and removed from the original form.

In Mandaean cosmology, the Sea of Suf is a primordial sea in the World of Darkness.[4]  
[5][6]

Kabbalah

Tehom is also mentioned as the first of seven "Infernal Habitations" that correspond to the ten qlippoth (literally "peels") of Jewish Kabbalistic tradition, often in place of Sheol.

Sanchuniathon

Robert R. Stieglitz stated that Eblaitic texts demonstrate the equation of the goddess Berouth in the mythology of Sanchuniathon with Ugaritic thmt and Akkadian Tiāmat, as the sea was called tihamatum, and also bu'rātum = Canaanite be'erôt ("fountains").[7]

See also

Abyss (religion)

Abzu

Atum

Cosmic Ocean

Nu (mythology)

Tohu wa-bohu

Tiamat

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## Underworlds

### Abrahamic

Christianity AbyssHadesHellLake of fireLimboOuter darknessPurgatoryIslam  
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### American

Aztec MictlānMaya Xibalba

### East Asian

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### Indian

NarakaBuddhism BardoNarakaHinduism NarakaPatalaJainism Naraka

### Near East

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### European

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MeadowsElysiumErebusFortunate IslesHadesOrcusTartarusWelsh AnnwnFinnic

Tuonela

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### Genesis 1

Categories: Hebrew words and phrases in the Hebrew BibleJewish underworldBiblical cosmologyGenesis 1

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Mahayana Buddhism

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Mahayana Buddhism - World History Encyclopedia

Mahayana Buddhism, meaning "Great Vehicle," is the largest branch of Buddhism, emphasizing compassion and the bodhisattva ideal—striving for enlightenment to help all sentient beings, rather than just oneself. Emerging in ancient India, it became dominant in East Asia (China, Japan, Korea) and includes traditions like Zen, Pure Land, and Tibetan Buddhism, incorporating vast scriptures (sutras) and practices focused on emptiness, skillful means, and universal liberation from suffering (samsara).

Core Beliefs & Ideals

**Bodhisattva Ideal:** The central figure is the bodhisattva, an enlightened being who delays their own nirvana to guide others to awakening.

**Emptiness (Shunyata):** Teaches that all phenomena are empty of inherent existence, interdependent, and lack a permanent self, a core concept of its philosophy.

**Universal Salvation:** Believes enlightenment is accessible to all beings, not just monastics, through compassion (karuna) and wisdom (prajna).

Key Practices & Scriptures

**Paramitas (Perfections):** Practices like generosity, patience, effort, meditation, and wisdom are cultivated.

**Sutras:** Accepts early Buddhist scriptures but also relies on later Mahayana Sutras (like the Lotus, Heart, Diamond Sutras) that elaborate on emptiness and compassion.

**Meditation & Mantras:** Uses meditation and mantra recitation (e.g., Om Mani Padme Hum) to develop focus and realize deeper truths, notes.

Major Schools & Influence

**Dominant in Asia:** It's the primary form in China, Japan, Korea, Vietnam, and Tibet.

**Diverse Schools:** Includes Zen (Chan), Pure Land, Nichiren, Tendai, and Tibetan Buddhism (Vajrayana is often seen as a subset or related path within Mahayana).

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Mahayana Buddhism

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Mahayana is one of the primary branches of Buddhism and the dominant form practiced in China, Japan, Korea, and Southeast Asia.

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Mahayana Buddhism

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Mahayana vs. Theravada on Dependent Origination

Popular comment · They're not different. The teaching is essentially the same.

Theravada study of the Pali Canon won't be quite the same, with the same emphases, as Mahayana training, but they contain the same basic teachings. The difference is more the context. In Mahayana, the shravaka teachings that Theravada regards as Buddhist scripture are regarded as only the first step of practice. With entrance into the specifically Mahayana teachings, such as the heart sutra, there's a radical change in View. The heart sutra presents the teaching on shunyata or emptiness.

Pratityasamutpada says nothing exists on its own because all phenomena arise dependent on each other. A typical example is to look at a car. If you take off pieces, when does it cease to be a car? The fenders? The roof? The engine? The seats? What's the essence of carness? That's a kind of thought experiment that shows how we

experience a charged projection rather than actual objects. It's a way to help reduce attachment to apparent solidity and to see how self is also a changeable composite. Shunyata is coming at it on a less dualistic level. It's pointing out that experience itself is ungraspable. Self and other are both empty of existence. Phenomena appear, yet have no substance. Form is empty and emptiness is also form. Vivid appearance yet ungraspable. In a way you could say it's the ultimate conclusion of pratityasamutpada's logic. So pratityasamutpada is looking at it in dualistic terms, ego's point of view. It's saying that what you think is solid actually isn't. Dualistic perception is the reference point. Mahayana schools teach the same thing, but then introduce shunyata as the view of post-realization. Shunyata is looking at it from the point of view of actually realizing emptiness. It's saying, "Look, you have to give up all reference points. That's the deal. There isn't even a self to lose. There isn't even loss. There's no samsara, no nirvana, no buddha, no enlightenment, nada. You don't get to have any bearings. No up or down, back or forward. That's dualistic mind. There's only the wisdom of seeing that." As it says in the heart sutra, "Since the bodhisattvas have no attainment, they abide by means of prajnaparamita." In Theravada, as I understand it, the word emptiness is used to refer to pratityasamutpada and Mahayana emptiness, shunyata, is not recognized at all. That can be a bit confusing. There are numerous shared terms that mean very different things in one school than they do in the other.

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An illustration in a manuscript of the *Aṣṭasāhasrikā Prajñāpāramitā Sūtra* from Nalanda, depicting the bodhisattva Maitreya, an important figure in Mahāyāna

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A Lotus, one of the eight auspicious symbols in Mahāyāna

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Mahayana[a] is the largest branch of Buddhism, followed by Theravada. It is a broad group of Buddhist traditions, texts, philosophies, and practices developed in ancient India (c. 1st century BCE onwards). Mahāyāna accepts the main scriptures and teachings of early Buddhism but also recognizes various doctrines and texts that are not accepted by Theravada Buddhism as original. These include the Mahāyāna sūtras and their emphasis on the bodhisattva path and Prajñāpāramitā.[1] Vajrayana or Mantra traditions are a subset of Mahāyāna which makes use of numerous Tantric methods Vajrayānists consider to help achieve Buddhahood.[2]

Mahāyāna also refers to the path of the bodhisattva striving to become a fully awakened Buddha for the benefit of all sentient beings, and is thus also called the "Bodhisattva Vehicle" (Bodhisattvayāna).[3][note 1] Mahāyāna Buddhism generally sees the goal of becoming a Buddha through the bodhisattva path as being available to all and sees the



state of the arhat as incomplete.[4] Mahāyāna also includes numerous Buddhas and bodhisattvas that are not found in Theravada (such as Amitābha and Vairocana).[5] Mahāyāna Buddhist philosophy also promotes unique theories, such as the Madhyamaka theory of emptiness (śūnyatā), the Vijñānavāda ("the doctrine of consciousness" also called "mind-only"), and the Buddha-nature teaching.

While initially a small movement in India, Mahāyāna eventually grew to become an influential force in Indian Buddhism.[6] Large scholastic centers associated with Mahāyāna such as Nalanda and Vikramashila thrived between the 7th and 12th centuries.[6] In the course of its history, Mahāyāna Buddhism spread from South Asia to East Asia, Southeast Asia and the Himalayan regions. Various Mahāyāna traditions are the predominant forms of Buddhism found in China, Korea, Japan, Taiwan, Singapore, Vietnam, Philippines, Malaysia and Indonesia.[7] Since Vajrayana is a tantric form of Mahāyāna, Mahāyāna Buddhism is also dominant in Tibet, Mongolia, Bhutan, and other Himalayan regions. It has also been traditionally present elsewhere in Asia as a minority among Buddhist communities in Nepal, Malaysia, Indonesia and regions with Asian diaspora communities.

As of 2010, the Mahāyāna tradition was the largest major tradition of Buddhism, with 53% of Buddhists belonging to East Asian Mahāyāna and 6% to Vajrayana, compared to 36% to Theravada.[8]

Etymology  
Original Sanskrit

The Five Tathāgatas in Shishoin Temple (Tokyo). A unique feature of Mahāyāna is the belief that there are multiple Buddhas which are currently teaching the Dharma.

Mahāyāna Buddhist triad, including Bodhisattva Maitreya, the Buddha, and Bodhisattva Avalokiteśvara. 2nd–3rd century CE, Gandhāra

According to Jan Nattier, the term Mahāyāna ("Great Vehicle") was originally an honorary synonym for Bodhisattvayāna ("Bodhisattva Vehicle"),[9] the vehicle of a bodhisattva seeking buddhahood for the benefit of all sentient beings.[3] The term Mahāyāna (which had earlier been used simply as an epithet for Buddhism itself) was therefore adopted at an early date as a synonym for the path and the teachings of the bodhisattvas. Since it was simply an honorary term for Bodhisattvayāna, the adoption of the term Mahāyāna and its application to Bodhisattvayāna did not represent a significant turning point in the development of a Mahāyāna tradition.[9]

The earliest Mahāyāna texts, such as the Lotus Sūtra, often use the term Mahāyāna as a synonym for Bodhisattvayāna, but the term Hīnayāna is comparatively rare in the earliest sources. The presumed dichotomy between Mahāyāna and Hīnayāna can be deceptive, as the two terms were not actually formed in relation to one another in the same era.[10]

Among the earliest and most important references to Mahāyāna are those that occur in the Lotus Sūtra (Skt. Saddharma Puṇḍarīka Sūtra) dating between the 1st century BCE and the 1st century CE.[11] Seishi Karashima has suggested that the term first used in an earlier Gandhāri Prakrit version of the Lotus Sūtra was not the term mahāyāna but the Prakrit word mahājāna in the sense of mahājñāna (great knowing).[12][13] At a later stage when the early Prakrit word was converted into Sanskrit, this mahājāna, being phonetically ambivalent, may have been converted into mahāyāna, possibly because of what may have been a double meaning in the famous Parable of the Burning House, which talks of three vehicles or carts (Skt: yāna).[note 2][12][14]

### Chinese translation

In Chinese, Mahāyāna is called 大乘 (dàshèng, or dàchéng), which is a calque of maha (great 大) yana (vehicle 乘). There is also the transliteration 摩訶衍那.[15][16] The term appeared in some of the earliest Mahāyāna texts, including Emperor Ling of Han's translation of the Lotus Sutra.[17] It also appears in the Chinese Āgamas, though scholars like Yin Shun argue that this is a later addition.[18][19][20] Some Chinese scholars also argue that the meaning of the term in these earlier texts is different from later ideas of Mahāyāna Buddhism.[21]

### History

Seated Avalokiteshvara bodhisattva. Gandharan, from Loriyan Tangai. Kushan period, 1st – 3rd century CE. Indian Museum, Calcutta

Cave complex associated with the Mahāsāṃghika sect. Karla Caves, Mahārāṣṭra, India  
Origin

The origins of Mahāyāna are still not completely understood and there are numerous competing theories.[22] The earliest Western views of Mahāyāna assumed that it existed as a separate school in competition with the so-called "Hīnayāna" schools. Some of the major theories about the origins of Mahāyāna include the following:

The lay origins theory was first proposed by Jean Przyluski and then defended by Étienne Lamotte and Akira Hirakawa. This view states that laypersons were particularly important in the development of Mahāyāna and is partly based on some texts like the Vimalakīrti Sūtra, which praise lay figures at the expense of monastics.[23] This theory is no longer widely accepted since numerous early Mahāyāna works promote monasticism and asceticism.[24][25]

The Mahāsāṃghika origin theory, which argues that Mahāyāna developed within the Mahāsāṃghika tradition.[24] This is defended by scholars such as Hendrik Kern, A.K. Warder and Paul Williams who argue that at least some Mahāyāna elements developed among Mahāsāṃghika communities (from the 1st century BCE onwards), possibly in the area along the Kṛṣṇa River in the Āndhra region of southern India.[26][27][28][29] The Mahāsāṃghika doctrine of the supramundane (lokottara) nature of the Buddha is sometimes seen as a precursor to Mahāyāna views of the Buddha.[5] Some scholars

also see Mahāyāna figures like Nāgārjuna, Dignaga, Candrakīrti, Āryadeva, and Bhāviveka as having ties to the Mahāsāṃghika tradition of Āndhra.[30] However, other scholars have also pointed to different regions as being important, such as Gandhara and northwest India.[31][note 3][32]

The Mahāsāṃghika origins theory has also slowly been shown to be problematic by scholarship that revealed how certain Mahāyāna sutras show traces of having developed among other nikāyas or monastic orders (such as the Dharmaguptaka).[33] Because of such evidence, scholars like Paul Harrison and Paul Williams argue that the movement was not sectarian and was possibly pan-buddhist.[24][34] There is no evidence that Mahāyāna ever referred to a separate formal school or sect of Buddhism, but rather that it existed as a certain set of ideals, and later doctrines, for aspiring bodhisattvas.[17]

The "forest hypothesis" meanwhile states that Mahāyāna arose mainly among "hard-core ascetics, members of the forest dwelling (aranyavasin) wing of the Buddhist Order", who were attempting to imitate the Buddha's forest living.[35] This has been defended by Paul Harrison, Jan Nattier and Reginald Ray. This theory is based on certain sutras like the Ugraparipṛcchā Sūtra and the Mahāyāna Rāṣṭrapālāparipṛcchā which promote ascetic practice in the wilderness as a superior and elite path. These texts criticize monks who live in cities and denigrate the forest life.[17][36]

Jan Nattier's study of the Ugraparipṛcchā Sūtra, *A few good men* (2003) argues that this sutra represents the earliest form of Mahāyāna, which presents the bodhisattva path as a 'supremely difficult enterprise' of elite monastic forest asceticism.[24] Boucher's study on the Rāṣṭrapālāparipṛcchā-sūtra (2008) is another recent work on this subject.[37]

The cult of the book theory, defended by Gregory Schopen, states that Mahāyāna arose among a number of loosely connected book worshipping groups of monastics, who studied, memorized, copied and revered particular Mahāyāna sūtras. Schopen thinks they were inspired by cult shrines where Mahāyāna sutras were kept.[24] Schopen also argued that these groups mostly rejected stupa worship, or worshipping holy relics.

David Drewes has recently argued against all of the major theories outlined above. He points out that there is no actual evidence for the existence of book shrines, that the practice of sutra veneration was pan-Buddhist and not distinctly Mahāyāna. Furthermore, Drewes argues that "Mahāyāna sutras advocate mnemonic/oral/aural practices more frequently than they do written ones." [24] Regarding the forest hypothesis, he points out that only a few Mahāyāna sutras directly advocate forest dwelling, while the others either do not mention it or see it as unhelpful, promoting easier practices such as "merely listening to the sutra, or thinking of particular Buddhas, that they claim can enable one to be reborn in special, luxurious 'pure lands' where one will be able to make easy and rapid progress on the bodhisattva path and attain Buddhahood after as little as one lifetime." [24]

Drewes states that the evidence merely shows that "Mahāyāna was primarily a textual movement, focused on the revelation, preaching, and dissemination of Mahāyāna sutras, that developed within, and never really departed from, traditional Buddhist social and institutional structures." [38] Drewes points out the importance of dharmabhāṣakas (preachers, reciters of these sutras) in the early Mahāyāna sutras. This figure is widely praised as someone who should be respected, obeyed ('as a slave serves his lord'), and donated to, and it is thus possible these people were the primary agents of the Mahāyāna movement. [38]

Early Mahayana came directly from "early Buddhist schools" and was a successor to them. [39][40]

Early Mahāyāna  
Earliest Mahayana inscription

Inscribed pedestal with the first known occurrence of the name of "Amitabha Buddha" in the "year 26 of Huvishka" (153 CE) [41] In Brahmi script in the inscription:

"Bu-ddha-sya A-mi-tā-bha-sya"

"Of the Buddha Amitabha" [42]

The earliest textual evidence of "Mahāyāna" comes from sūtras ("discourses", scriptures) originating around the beginning of the common era. Jan Nattier has noted that some of the earliest Mahāyāna texts, such as the Ugraparipṛccha Sūtra use the term "Mahāyāna", yet there is no doctrinal difference between Mahāyāna in this context and the early schools. Instead, Nattier writes that in the earliest sources, "Mahāyāna" referred to the rigorous emulation of Gautama Buddha's path to Buddhahood. [17]

Some important evidence for early Mahāyāna Buddhism comes from the texts translated by the Indoscythian monk Lokakṣema in the 2nd century CE, who came to China from the kingdom of Gandhāra. These are some of the earliest known Mahāyāna texts. [43][44][note 4] Study of these texts by Paul Harrison and others show that they strongly promote monasticism (contra the lay origin theory), acknowledge the legitimacy of arhatship, and do not show any attempt to establish a new sect or order. [24] A few of these texts often emphasize ascetic practices, forest dwelling, and deep states of meditative concentration (samadhi). [45]

Indian Mahāyāna never had nor ever attempted to have a separate Vinaya or ordination lineage from the early schools of Buddhism, and therefore each bhikṣu or bhikṣuṇī adhering to the Mahāyāna formally belonged to one of the early Buddhist schools. Membership in these nikāyas, or monastic orders, continues today, with the Dharmaguptaka nikāya being used in East Asia, and the Mūlasarvāstivāda nikāya being used in Tibetan Buddhism. Therefore, Mahāyāna was never a separate monastic sect outside of the early schools. [46]

Painting from the Mogao Caves (Cave 217), Dunhuang, illustrating Sukhavati, the buddhafiield of Amitabha Buddha

Photograph of three bodhisattva statues found at Jamal Garhi (Khyber Pakhtunkhwa, Pakistan).

Paul Harrison clarifies that while monastic Mahāyānists belonged to a nikāya, not all members of a nikāya were Mahāyānists.[47] From Chinese monks visiting India, we now know that both Mahāyāna and non-Mahāyāna monks in India often lived in the same monasteries side by side.[48] It is also possible that, formally, Mahāyāna would have been understood as a group of monks or nuns within a larger monastery taking a vow together (known as a "kriyākarma") to memorize and study a Mahāyāna text or texts.[49]

The earliest stone inscription containing a recognizably Mahāyāna formulation and a mention of the Buddha Amitābha (an important Mahāyāna figure) was found in the Indian subcontinent in Mathura, and dated to around 180 CE. Remains of a statue of a Buddha bear the Brāhmī inscription: "Made in the year 28 of the reign of King Huviṣka, ... for the Blessed One, the Buddha Amitābha." [42] There is also some evidence that the Kushan Emperor Huviṣka himself was a follower of Mahāyāna. A Sanskrit manuscript fragment in the Schøyen Collection describes Huviṣka as having "set forth in the Mahāyāna." [50] Evidence of the name "Mahāyāna" in Indian inscriptions in the period before the 5th century is very limited in comparison to the multiplicity of Mahāyāna writings transmitted from Central Asia to China at that time. [note 5][note 6] [note 7]

Based on archeological evidence, Gregory Schopen argues that Indian Mahāyāna remained "an extremely limited minority movement – if it remained at all – that attracted absolutely no documented public or popular support for at least two more centuries." [24] Likewise, Joseph Walser speaks of Mahāyāna's "virtual invisibility in the archaeological record until the fifth century". [51] Schopen also sees this movement as being in tension with other Buddhists, "struggling for recognition and acceptance". [52] Their "embattled mentality" may have led to certain elements found in Mahāyāna texts like Lotus sutra, such as a concern with preserving texts. [52]

Schopen, Harrison and Nattier also argue that these communities were probably not a single unified movement, but scattered groups based on different practices and sutras. [24] One reason for this view is that Mahāyāna sources are extremely diverse, advocating many different, often conflicting doctrines and positions, as Jan Nattier writes: [53]

Thus we find one scripture (the Aksobhya-vyuha) that advocates both srāvaka and bodhisattva practices, propounds the possibility of rebirth in a pure land, and enthusiastically recommends the cult of the book, yet seems to know nothing of emptiness theory, the ten bhumis, or the trikaya, while another (the P'u-sa pen-yeh ching) propounds the ten bhumis and focuses exclusively on the path of the bodhisattva,

but never discusses the paramitas. A Madhyamika treatise (Nagarjuna's *Mulamadhyamika-karikas*) may enthusiastically deploy the rhetoric of emptiness without ever mentioning the bodhisattva path, while a Yogacara treatise (Vasubandhu's *Madhyanta-vibhaga-bhasya*) may delve into the particulars of the trikaya doctrine while eschewing the doctrine of *ekayana*. We must be prepared, in other words, to encounter a multiplicity of Mahayanas flourishing even in India, not to mention those that developed in East Asia and Tibet.

In spite of being a minority in India, Indian Mahāyāna was an intellectually vibrant movement, which developed various schools of thought during what Jan Westerhoff has been called "The Golden Age of Indian Buddhist Philosophy" (from the beginning of the first millennium CE up to the 7th century).[54] Some major Mahāyāna traditions are *Prajñāpāramitā*, *Mādhyamaka*, *Yogācāra*, Buddha-nature (*Tathāgatagarbha*), and the school of Dignaga and Dharmakīrti as the last and most recent.[55] Major early figures include Nagarjuna, Āryadeva, Aśvaghōṣa, Asanga, Vasubandhu, and Dignaga. Mahāyāna Buddhists seem to have been active in the Kushan Empire (30–375 CE), a period that saw great missionary and literary activities by Buddhists. This is supported by the works of the historian Taranatha.[56]

## Growth

Ruins of the Nalanda Mahavihara (Great Monastery) in Bihar, a major center for the study of Mahāyāna Buddhism from the fifth century CE to c. 1200 CE

Buddhist expansion in Asia, from Buddhist heartland in northern India (dark orange) starting 5th century BCE, to Buddhist majority realm (orange) with the exception of China, and historical extent of Buddhism influences (yellow). Mahāyāna (red arrow), Theravāda (green arrow), and Tantric-Vajrayāna (blue arrow). The overland and maritime "Silk Roads" were interlinked and complementary, forming what scholars have called the "great circle of Buddhism".[40]

The Mahāyāna movement (or movements) remained quite small until it experienced much growth in the fifth century. Very few manuscripts have been found before the fifth century (the exceptions are from Bamiyan). According to Walser, "the fifth and sixth centuries appear to have been a watershed for the production of Mahāyāna manuscripts." [57] Likewise it is only in the 4th and 5th centuries CE that epigraphic evidence shows some kind of popular support for Mahāyāna, including some possible royal support at the kingdom of Shan shan as well as in Bamiyan and Mathura.[58]

Still, even after the 5th century, the epigraphic evidence which uses the term Mahāyāna is still quite small and is notably mainly monastic, not lay.[58] By this time, Chinese pilgrims, such as Faxian (337–422 CE), Xuanzang (602–664), Yijing (635–713 CE) were traveling to India, and their writings do describe monasteries which they label 'Mahāyāna' as well as monasteries where both Mahāyāna monks and non-Mahāyāna monks lived together.[59]

After the fifth century, Mahāyāna Buddhism and its institutions slowly grew in influence. Some of the most influential institutions became massive monastic university complexes such as Nalanda (established by the 5th-century CE Gupta emperor, Kumaragupta I) and Vikramashila (established under Dharmapala c. 783 to 820) which were centers of various branches of scholarship, including Mahāyāna philosophy. The Nalanda complex eventually became the largest and most influential Buddhist center in India for centuries. [60] Even so, as noted by Paul Williams, "it seems that fewer than 50 percent of the monks encountered by Xuanzang (Hsüan-tsang; c. 600–664) on his visit to India actually were Mahāyānists." [61]

## Expansion outside of India

Recreation of a cave mural from the Mogao Caves depicting the Buddha surrounded by bodhisattvas

Over time Indian Mahāyāna texts and philosophy reached Central Asia and China through trade routes like the Silk Road, later spreading throughout East Asia. [39] Over time, Central Asian Buddhism became heavily influenced by Mahāyāna and it was a major source for Chinese Buddhism. Mahāyāna works have also been found in Gandhāra, indicating the importance of this region for the spread of Mahāyāna. Central Asian Mahāyāna scholars were very important in the Silk Road Transmission of Buddhism. [62] They include translators like Lokakṣema (c. 167–186), Dharmarakṣa (c. 265–313), Kumārajīva (c. 401), and Dharmakṣema (385–433). The site of Dunhuang seems to have been a particularly important place for the study of Mahāyāna Buddhism. [56]

Mahāyāna spread from China to Korea, Vietnam, and Taiwan, which (along with Korea) would later spread it to Japan. [39][40] Mahāyāna also spread from India to Myanmar, and then Sumatra and Malaysia. [39][40] Mahāyāna spread from Sumatra to other Indonesian islands, including Java and Borneo, the Philippines, Cambodia, and eventually, Indonesian Mahāyāna traditions made it to China. [39][40]

By the fourth century, Chinese monks like Faxian (c. 337–422 CE) had also begun to travel to India (now dominated by the Guptas) to bring back Buddhist teachings, especially Mahāyāna works. [63] These figures also wrote about their experiences in India and their work remains invaluable for understanding Indian Buddhism. In some cases Indian Mahāyāna traditions were directly transplanted, as with the case of the East Asian Madhyamaka (by Kumārajīva) and East Asian Yogacara (especially by Xuanzang). Later, new developments in Chinese Mahāyāna led to new Chinese Buddhist traditions like Tiantai, Huayan, Pure Land and Chan Buddhism (Zen). These traditions would then spread to Korea, Vietnam and Japan.

Forms of Mahāyāna Buddhism which are mainly based on the doctrines of Indian Mahāyāna sutras are still popular in East Asian Buddhism, which is mostly dominated by various branches of Mahāyāna Buddhism. Paul Williams has noted that in this tradition in the Far East, primacy has always been given to the study of the Mahāyāna

sūtras.[64]

## Later developments

The use of mandalas was one new feature of Tantric Buddhism, which also adopted new deities such as Chakrasamvara (pictured)

Beginning during the Gupta (c. 3rd century CE–575 CE) period a new movement began to develop which drew on previous Mahāyāna doctrine as well as new Pan-Indian tantric ideas. This came to be known by various names such as Vajrayāna (Tibetan: rdo rje theg pa), Mantrayāna, and Esoteric Buddhism or "Secret Mantra" (Guhyamantra). This new movement continued into the Pala era (8th century–12th century CE), during which it grew to dominate Indian Buddhism.[65] Possibly led by groups of wandering tantric yogis named mahasiddhas, this movement developed new tantric spiritual practices and also promoted new texts called the Buddhist Tantras.[66]

Philosophically, Vajrayāna Buddhist thought remained grounded in the Mahāyāna Buddhist ideas of Madhyamaka, Yogacara and Buddha-nature.[67][68] Tantric Buddhism generally deals with new forms of meditation and ritual which often makes use of the visualization of Buddhist deities (including Buddhas, bodhisattvas, dakinis, and fierce deities) and the use of mantras. Most of these practices are esoteric and require ritual initiation or introduction by a tantric master (vajracarya) or guru.[69]

The source and early origins of Vajrayāna remain a subject of debate among scholars. Some scholars like Alexis Sanderson argue that Vajrayāna derives its tantric content from Shaivism and that it developed as a result of royal courts sponsoring both Buddhism and Saivism. Sanderson argues that Vajrayāna works like the Samvara and Guhyasamaja texts show direct borrowing from Shaiva tantric literature.[70][71] However, other scholars such as Ronald M. Davidson question the idea that Indian tantrism developed in Shaivism first and that it was then adopted into Buddhism. Davidson points to the difficulties of establishing a chronology for the Shaiva tantric literature and argues that both traditions developed side by side, drawing on each other as well as on local Indian tribal religion.[72]

Whatever the case, this new tantric form of Mahāyāna Buddhism became extremely influential in India, especially in Kashmir and in the lands of the Pala Empire. It eventually also spread north into Central Asia, the Tibetan plateau and to East Asia. Vajrayāna remains the dominant form of Buddhism in Tibet, in surrounding regions like Bhutan and in Mongolia. Esoteric elements are also an important part of East Asian Buddhism where it is referred to by various terms. These include: Zhēnyán (Chinese: 真言, literally "true word", referring to mantra), Mijiao (Chinese: 密教; Esoteric Teaching), Mizōng (密宗; "Esoteric Tradition") or Tángmì (唐密; "Tang (Dynasty) Esoterica") in Chinese and Shingon, Tomitsu, Mikkyo, and Taimitsu in Japanese.

## Worldview



A Ming bronze of the Buddha Mahāvairocana which depicts his body as being composed of numerous other Buddhas

The female bodhisattva Prajñaparamita Devi

Few things can be said with certainty about Mahāyāna Buddhism in general other than that the Buddhism practiced in China, Indonesia, Vietnam, Korea, Tibet, Mongolia and Japan is Mahāyāna Buddhism.[note 8] Mahāyāna can be described as a loosely bound collection of many teachings and practices (some of which are seemingly contradictory). [note 9] Mahāyāna constitutes an inclusive and broad set of traditions characterized by plurality and the adoption of a vast number of new sutras, ideas and philosophical treatises in addition to the earlier Buddhist texts.

Broadly speaking, Mahāyāna Buddhists accept the classic Buddhist doctrines found in early Buddhism (i.e. the Nikāya and Āgamas), such as the Middle Way, Dependent origination, the Four Noble Truths, the Noble Eightfold Path, the Three Jewels, the Three marks of existence and the bodhipakṣadharmas (aids to awakening).[73] Mahāyāna Buddhism further accepts some of the ideas found in Buddhist Abhidharma thought. However, Mahāyāna also adds numerous Mahāyāna texts and doctrines, which are seen as definitive and in some cases superior teachings.[74][75] D.T. Suzuki described the broad range and doctrinal liberality of Mahāyāna as "a vast ocean where all kinds of living beings are allowed to thrive in a most generous manner, almost verging on a chaos".[76]

Paul Williams refers to the main impulse behind Mahāyāna as the vision which sees the motivation to achieve Buddhahood for sake of other beings as being the supreme religious motivation. This is the way that Atisha defines Mahāyāna in his Bodhipathapradīpa.[77] As such, according to Williams, "Mahāyāna is not as such an institutional identity. Rather, it is inner motivation and vision, and this inner vision can be found in anyone regardless of their institutional position." [78] Thus, instead of a specific school or sect, Mahāyāna is a "family term" or a religious tendency, which is united by "a vision of the ultimate goal of attaining full Buddhahood for the benefit of all sentient beings (the 'bodhisattva ideal') and also (or eventually) a belief that Buddhas are still around and can be contacted (hence the possibility of an ongoing revelation)." [79]

The Buddhas

Tibetan depiction of Buddha Amitāyus in his Pure Land of Sukhavatī

The monumental sculpture of the Longmen Buddha Grottoes contains a giant statue of Vairocana Buddha

Buddhas and bodhisattvas (beings on their way to Buddhahood) are central elements of Mahāyāna. Mahāyāna has a vastly expanded cosmology and theology, with various Buddhas and powerful bodhisattvas residing in different worlds and buddha-fields (buddha kṣetra).[5] Buddhas unique to Mahāyāna include the Buddhas Amitābha ("Infinite Light"), Akṣobhya ("the Imperturbable"), Bhaiṣajyaguru ("Medicine guru") and

Vairocana ("the Illuminator"). In Mahāyāna, a Buddha is seen as a being that has achieved the highest kind of awakening due to his superior compassion and wish to help all beings.[80]

An important feature of Mahāyāna is the way that it understands the nature of a Buddha, which differs from non-Mahāyāna understandings. Mahāyāna texts not only often depict numerous Buddhas besides Sakyamuni, but see them as transcendental or supramundane (lokuttara) beings with great powers and huge lifetimes. The White Lotus Sutra famously describes the lifespan of the Buddha as immeasurable and states that he actually achieved Buddhahood countless of eons (kalpas) ago and has been teaching the Dharma through his numerous avatars for an unimaginable period of time. [81][82][83]

Furthermore, Buddhas are active in the world, constantly devising ways to teach and help all sentient beings. According to Paul Williams, in Mahāyāna, a Buddha is often seen as "a spiritual king, relating to and caring for the world", rather than simply a teacher who after his death "has completely 'gone beyond' the world and its cares".[84] Buddha Sakyamuni's life and death on earth are then usually understood docetically as a "mere appearance", his death is a show, while in actuality he remains out of compassion to help all sentient beings.[84] Similarly, Guang Xing describes the Buddha in Mahāyāna as an omnipotent and almighty divinity "endowed with numerous supernatural attributes and qualities".[85] Mahayana Buddhologies have often been compared to various types of theism (including pantheism) by different scholars, though there is disagreement among scholars regarding this issue as well on the general relationship between Buddhism and Theism.[86]

The idea that Buddhas remain accessible is extremely influential in Mahāyāna and also allows for the possibility of having a reciprocal relationship with a Buddha through prayer, visions, devotion and revelations.[87] Through the use of various practices, a Mahāyāna devotee can aspire to be reborn in a Buddha's pure land or buddha field (buddhakṣetra), where they can strive towards Buddhahood in the best possible conditions. Depending on the sect, liberation into a buddha-field can be obtained by faith, meditation, or sometimes even by the repetition of Buddha's name. Faith-based devotional practices focused on rebirth in pure lands are common in East Asia Pure Land Buddhism.[88]

The influential Mahāyāna concept of the three bodies (trikāya) of a Buddha developed to make sense of the transcendental nature of the Buddha. This doctrine holds that the "bodies of magical transformation" (nirmāṇakāyas) and the "enjoyment bodies" (saṃbhogakāya) are emanations from the ultimate Buddha body, the Dharmakaya, which is none other than the ultimate reality itself, i.e. emptiness or Thusness.[89]

The Bodhisattvas

Avalokiteśvara, the bodhisattva of compassion. Ajaṇṭā Caves, Maharashtra, India

The Mahāyāna bodhisattva path (mārga) or vehicle (yāna) is seen as being the superior spiritual path by Mahāyānists, over and above the paths of those who seek arhatship or "solitary buddhahood" for their own sake (Śrāvakayāna and Pratyekabuddhayāna).[90] Mahāyāna Buddhists generally hold that pursuing only the personal release from suffering i.e. nirvāṇa is a smaller or inferior aspiration (called "hinayana"), because it lacks the wish and resolve to liberate all other sentient beings from saṃsāra (the round of rebirth) by becoming a Buddha.[91][92][93]

This wish to help others by entering the Mahāyāna path is called bodhicitta and someone who engages in this path to complete buddhahood is a bodhisattva. High level bodhisattvas (with eons of practice) are seen as extremely powerful supramundane beings. They are objects of devotion and prayer throughout the Mahāyāna world.[94] Popular bodhisattvas which are revered across Mahāyāna include Avalokiteshvara, Mañjuśrī, Tara and Maitreya. Bodhisattvas could reach the personal nirvana of the arhats, but they reject this goal and remain in saṃsāra to help others out of compassion. [95][96][94]

According to eighth-century Mahāyāna philosopher Haribhadra, the term "bodhisattva" can technically refer to those who follow any of the three vehicles, since all are working towards bodhi (awakening) and hence the technical term for a Mahāyāna bodhisattva is a mahāsattva (great being) bodhisattva.[97] According to Paul Williams, a Mahāyāna bodhisattva is best defined as:

that being who has taken the vow to be reborn, no matter how many times this may be necessary, in order to attain the highest possible goal, that of Complete and Perfect Buddhahood. This is for the benefit of all sentient beings.[97]

There are two models for the nature of the bodhisattvas, which are seen in the various Mahāyāna texts. One is the idea that a bodhisattva must postpone their awakening until full Buddhahood is attained. This could take eons and in the meantime, they will help countless beings. After reaching Buddhahood, they do pass on to nirvāṇa (after which they do not return). The second model is the idea that there are two kinds of nirvāṇa, the nirvāṇa of an arhat and a superior type of nirvāṇa called apratiṣṭhita (non-abiding, not-established) that allows a Buddha to remain forever engaged in the world. As noted by Paul Williams, the idea of apratiṣṭhita nirvāṇa may have taken some time to develop and is not obvious in some of the early Mahāyāna literature.[96]

Illustrated Korean manuscript of the Lotus Sutra, Goryeo Dynasty, c. 1340. The three carts at the top which are symbolic of the three vehicles

Guanyin (Avalokiteśvara) with multiple arms symbolizing upaya and great compassion, Leshan, China

The Lotus, especially the puṇḍarīka (white lotus), is used in Mahāyāna to symbolize the

nature of bodhisattvas. The lotus is rooted in the earthly mud and yet flowers above the water in the open air. Similarly, the bodhisattva lives in the world but remains unstained by it[98]

#### The Bodhisattva Path

In most classic Mahāyāna sources (as well as in non-Mahāyāna sources on the topic), the bodhisattva path is said to take three or four *asaṃkheyyas* ("incalculable eons"), requiring a huge number of lifetimes of practice to complete.[99][100] However, certain practices are sometimes held to provide shortcuts to Buddhahood (these vary widely by tradition). According to the *Bodhipathapradīpa* (A Lamp for the Path to Awakening) by the Indian master Atiśa, the central defining feature of a bodhisattva's path is the universal aspiration to end suffering for themselves and all other beings, i.e. *bodhicitta*. [101]

The bodhisattva's spiritual path is traditionally held to begin with the revolutionary event called the "arising of the Awakening Mind" (*bodhicittotpāda*), which is the wish to become a Buddha in order to help all beings.[100] This is achieved in different ways, such as the meditation taught by the Indian master Shantideva in his *Bodhicaryavatara* called "equalising self and others and exchanging self and others". Other Indian masters like Atisha and Kamalashila also teach a meditation in which we contemplate how all beings have been our close relatives or friends in past lives. This contemplation leads to the arising of deep love (*maitrī*) and compassion (*karuṇā*) for others, and thus *bodhicitta* is generated.[102] According to the Indian philosopher Shantideva, when great compassion and *bodhicitta* arises in a person's heart, they cease to be an ordinary person and become a "son or daughter of the Buddhas".[101]

The idea of the bodhisattva is not unique to Mahāyāna Buddhism and it is found in Theravada and other early Buddhist schools. However, these schools held that becoming a bodhisattva required a prediction of one's future Buddhahood in the presence of a living Buddha.[103] In Mahāyāna, the term bodhisattva is applicable to any person from the moment they intend to become a Buddha (i.e. the moment in which *bodhicitta* arises in their mind) and without the requirement of a living Buddha being present.[103] Some Mahāyāna sūtras like the Lotus Sutra promote the bodhisattva path as being universal and open to everyone. Other texts disagree with this and state that only some beings have the capacity for Buddhahood.[104]

The generation of *bodhicitta* may then be followed by the taking of the bodhisattva vows (*praṇidhāna*) to "lead to Nirvana the whole immeasurable world of beings" as the *Prajñāparamita* sutras state. This compassionate commitment to help others is the central characteristic of the Mahāyāna bodhisattva.[105] These vows may be accompanied by certain ethical guidelines called bodhisattva precepts. Numerous sutras also state that a key part of the bodhisattva path is the practice of a set of virtues called *pāramitās* (transcendent or supreme virtues). Sometimes six are outlined: giving, ethical discipline, patient endurance, diligence, meditation and transcendent wisdom. [106][5]

Other sutras (like the Daśabhūmika) give a list of ten, with the addition of upāya (skillful means), prajñā (wisdom), vīrya (effort), śīla (virtue), Bala (spiritual power) and Jñāna (knowledge). [107] Prajñā (transcendent knowledge or wisdom) is arguably the most important virtue of the bodhisattva. This refers to an understanding of the emptiness of all phenomena, arising from study, deep consideration and meditation.[105]

## Bodhisattva levels

Amitābha Descending with Twenty-five Bodhisattvas (13th century), National Treasure, Chion-in, Kyoto, is regarded as a representative work of early Pure Land Buddhist art in Japan. In Japanese Buddhism, one of the Ten realms in which sentient beings aspire to be reborn is the Pure Land of Ultimate Bliss of Amitābha.

Various Mahāyāna Buddhist scriptures associate the beginning of the bodhisattva practice with what is called the "path of accumulation" or equipment (saṃhāra-mārga), which is the first path of the classic five paths schema.[108]

The Daśabhūmika Sūtra as well as other texts also outline a series of bodhisattva levels or spiritual stages (bhūmis ) on the path to Buddhahood. The various texts disagree on the number of stages however, the Daśabhūmika giving ten for example (and mapping each one to the ten paramitas), the Bodhisattvabhūmi giving seven and thirteen and the Avatamsaka outlining 40 stages.[107]

In later Mahāyāna scholasticism, such as in the work of Kamalashila and Atiśa, the five paths and ten bhūmi systems are merged and this is the progressive path model that is used in Tibetan Buddhism. According to Paul Williams, in these systems, the first bhūmi is reached once one attains "direct, nonconceptual and nondual insight into emptiness in meditative absorption", which is associated with the path of seeing (darśana-mārga). [108] At this point, a bodhisattva is considered an ārya (a noble being).[109]

## Skillful means and the One Vehicle

Main article: upāya

Skillful means or Expedient techniques (Skt. upāya) is another important virtue and doctrine in Mahāyāna Buddhism.[110] The idea is most famously expounded in the White Lotus Sutra, and refers to any effective method or technique that is conducive to spiritual growth and leads beings to awakening and nirvana. This doctrine states that, out of compassion, the Buddha adapts his teaching to whomever he is teaching. Because of this, it is possible that the Buddha may teach seemingly contradictory things to different people. This idea is also used to explain the vast textual corpus found in Mahāyāna.[111]

A closely related teaching is the doctrine of the One Vehicle (ekayāna). This teaching states that even though the Buddha is said to have taught three vehicles (the disciples' vehicle, the vehicle of solitary Buddhas and the bodhisattva vehicle, which are accepted by all early Buddhist schools), these actually are all skillful means which lead to the same place: Buddhahood. Therefore, there really are not three vehicles in an ultimate

sense, but one vehicle, the supreme vehicle of the Buddhas, which is taught in different ways depending on the faculties of individuals. Even those beings who think they have finished the path (i.e. the arhats) are actually not done, and they will eventually reach Buddhahood.[111]

This doctrine was not accepted in full by all Mahāyāna traditions. The Yogācāra school famously defended an alternative theory that held that not all beings could become Buddhas. This became a subject of much debate throughout Mahāyāna Buddhist history.[112]

### Prajñāpāramitā (Transcendent Knowledge)

Prajñāpāramitā is often personified by a female deity in Buddhist art. Some of the key Mahāyāna teachings are found in the Prajñāpāramitā ("Transcendent Knowledge" or "Perfection of Wisdom") texts, which are some of the earliest Mahāyāna works.[113] Prajñāpāramitā is a deep knowledge of reality which Buddhas and bodhisattvas attain. It is a transcendent, non-conceptual and non-dual kind of knowledge into the true nature of things.[114] This wisdom is also associated with insight into the emptiness (śūnyatā) of dharmas (phenomena) and their illusory nature (māyā).[115] This amounts to the idea that all phenomena (dharmas) without exception have "no essential unchanging core" (i.e. they lack svabhāva, an essence or inherent nature), and therefore have "no fundamentally real existence".[116] These empty phenomena are also said to be conceptual constructions.[117]

Because of this, all dharmas (things, phenomena), even the Buddha's Teaching, the Buddha himself, Nirvāṇa and all living beings, are like "illusions" or "magic" (māyā) and "dreams" (svapna).[118][117] This emptiness or lack of real existence applies even to the apparent arising and ceasing of phenomena. Because of this, all phenomena are also described as unarisen (anutpāda), unborn (ajata), "beyond coming and going" in the Prajñāpāramitā literature.[119][120] Most famously, the Heart Sutra states that "all phenomena are empty, that is, without characteristic, unproduced, unceased, stainless, not stainless, undiminished, unfilled".[121] The Prajñāpāramitā texts also use various metaphors to describe the nature of things, for example, the Diamond Sutra compares phenomena to: "A shooting star, a clouding of the sight, a lamp, an illusion, a drop of dew, a bubble, a dream, a lightning's flash, a thunder cloud." [citation needed]

Prajñāpāramitā is also associated with not grasping, not taking a stand on or "not taking up" (aparigṛhīta) anything in the world. The Aṣṭasāhasrikā Prajñāpāramitā Sūtra explains it as "not grasping at form, not grasping at sensation, perception, volitions and cognition".[122] This includes not grasping or taking up even correct Buddhist ideas or mental signs (such as "not-self", "emptiness", bodhicitta, vows), since these things are ultimately all empty concepts as well.[123][117]

Attaining a state of fearless receptivity (ksanti) through the insight into the true nature of reality (Dharmatā) in an intuitive, non-conceptual manner is said to be the

prajñāpāramitā, the highest spiritual wisdom. According to Edward Conze, the "patient acceptance of the non-arising of dharmas" (anutpattika-dharmakshanti) is "one of the most distinctive virtues of the Mahāyānistic saint."<sup>[124]</sup> The Prajñāpāramitā texts also claim that this training is not just for Mahāyānists, but for all Buddhists following any of the three vehicles.<sup>[125]</sup>

Madhyamaka (Centrism)

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A statue of the Mahāyāna philosopher Nagarjuna, founder of the Madhyamaka school. Considered by some to be an Arya (noble) bodhisattva or even the "second Buddha"<sup>[126]</sup>

The Mahāyāna philosophical school termed Madhyamaka (Middle theory or Centrism, also known as śūnyavāda, 'the emptiness theory') was founded by the second-century figure of Nagarjuna. This philosophical tradition focuses on refuting all theories which posit any kind of substance, inherent existence or intrinsic nature (svabhāva).<sup>[127]</sup>

In his writings, Nagarjuna attempts to show that any theory of intrinsic nature is contradicted by the Buddha's theory of dependent origination, since anything that has an independent existence cannot be dependently originated. The śūnyavāda philosophers were adamant that their denial of svabhāva is not a kind of nihilism (against protestations to the contrary by their opponents).<sup>[128]</sup>

Using the two truths theory, Madhyamaka claims that while one can speak of things existing in a conventional, relative sense, they do not exist inherently in an ultimate sense. Madhyamaka also argues that emptiness itself is also "empty", it does not have an absolute inherent existence of its own. It is also not to be understood as a transcendental absolute reality. Instead, the emptiness theory is merely a useful concept that should not be clung to. In fact, for Madhyamaka, since everything is empty of true existence, all things are just conceptualizations (prajñapti-matra), including the theory of emptiness, and all concepts must ultimately be abandoned in order to truly understand the nature of things.<sup>[128]</sup>

Vijñānavāda (The Consciousness doctrine)

Vijñānavāda ("the doctrine of consciousness", a.k.a. vijñapti-mātra, "perceptions only" and citta-mātra "mind only") is another important doctrine promoted by some Mahāyāna sutras which later became the central theory of a major philosophical movement which arose during the Gupta period called Yogācāra. The primary sutra associated with this school of thought is the Saṃdhi-nirmocana Sūtra, which claims that śūnyavāda is not the final definitive teaching (nītārtha) of the Buddha. Instead, the ultimate truth (paramārtha-satya) is said to be the view that all things (dharmas) are only mind (citta), consciousness (vijñāna) or perceptions (vijñapti) and that seemingly "external" objects (or "internal" subjects) do not really exist apart from the dependently originated flow of mental experiences.[129]

When this flow of mentality is seen as being empty of the subject-object duality we impose upon it, one reaches the non-dual cognition of "Thusness" (tathatā), which is nirvana. This doctrine is developed through various theories, the most important being the eight consciousnesses and the three natures.[130] The Saṃdhi-nirmocana calls its doctrine the 'third turning of the dharma wheel'. The Pratyutpanna sutra also mentions this doctrine, stating: "whatever belongs to this triple world is nothing but thought [citta-mātra]. Why is that? It is because however I imagine things, that is how they appear". [130]

The most influential thinkers in this tradition were the Indian brothers Asanga and Vasubandhu. Yogācāra philosophers developed their own interpretation of the doctrine of emptiness which also criticized Madhyamaka, in effect claiming it fell into nihilism. [131]

## Buddha-nature

A Kamakura period reliquary topped with a cintamani (wish fulfilling jewel). Buddha nature texts often use the metaphor of a jewel (i.e. buddha-nature) which all beings have but are unaware of

Main article: Buddha-nature

The doctrine of Tathāgata embryo or Tathāgata womb (Tathāgatagarbha), also known as Buddha-nature, matrix or principle (Skt: Buddha-dhātu) is important in all modern Mahāyāna traditions, though it is interpreted in many different ways. Broadly speaking, Buddha-nature is concerned with explaining what allows sentient beings to become Buddhas.[132] The earliest sources for this idea may include the Tathāgatagarbha Sūtra and the Mahāyāna Mahāparinirvāṇa Sūtra.[133][132] The Mahāyāna Mahāparinirvāṇa refers to "a sacred nature that is the basis for [beings] becoming buddhas", [134] and it also describes it as the 'Self' (atman).[135]

David Seyfort Ruegg explains this concept as the base or support for the practice of the path, and thus it is the "cause" (hetu) for the fruit of Buddhahood.[132] The Tathāgatagarbha Sūtra states that within the defilements is found "the tathagata's wisdom, the tathagata's vision, and the tathagata's body...eternally unsullied, and...replete with virtues no different from my own...the tathagatagarbhas of all beings



are eternal and unchanging".[136]

The ideas found in the Buddha-nature literature are a source of much debate and disagreement among Mahāyāna Buddhist philosophers as well as modern academics. [137] Some scholars have seen this as an influence from Brahmanic Hinduism, and some of these sūtras admit that the use of the term 'Self' is partly done in order to win over non-Buddhist ascetics (in other words, it is a skillful means).[138][139] According to some scholars, the Buddha-nature discussed in some Mahāyāna sūtras does not represent a substantial self (ātman) which the Buddha critiqued; rather, it is a positive expression of emptiness (śūnyatā) and represents the potentiality to realize Buddhahood through Buddhist practices.[140] Similarly, Williams thinks that this doctrine was not originally dealing with ontological issues, but with "religious issues of realising one's spiritual potential, exhortation, and encouragement." [136]

The Buddha-nature genre of sūtras can be seen as an attempt to state Buddhist teachings using positive language while also maintaining the middle way, to prevent people from being turned away from Buddhism by a false impression of nihilism.[141] This is the position taken by the Laṅkāvatāra Sūtra, which states that the Buddhas teach the doctrine of tathāgatagarbha (which sounds similar to an atman) in order to help those beings who are attached to the idea of anatman. However, the sūtra goes on to say that the tathāgatagarbha is empty and is not actually a substantial self.[142][143]

A different view is defended by various modern scholars like Michael Zimmermann. This view is the idea that Buddha-nature sūtras such as the Mahāparinirvāṇa and the Tathāgatagarbha Sūtra teach an affirmative vision of an eternal, indestructible Buddhic Self.[135] Shenpen Hookham, a western scholar and lama sees Buddha-nature as a True Self that is real and permanent.[144] Similarly, C. D. Sebastian understands the Ratnagotravibhāga's view of this topic as a transcendental self that is "the unique essence of the universe".[145]

#### Arguments for authenticity

Indian Mahāyāna Buddhists faced various criticisms from non-Mahāyānists regarding the authenticity of their teachings. The main critique they faced was that Mahāyāna teachings had not been taught by the Buddha, but were invented by later figures.[146] [147] Numerous Mahāyāna texts discuss this issue and attempt to defend the truth and authenticity of Mahāyāna in various ways.[148]

One idea that Mahāyāna texts put forth is that Mahāyāna teachings were taught later because most people were unable to understand the Mahāyāna sūtras at the time of the Buddha and that people were ready to hear the Mahāyāna only in later times.[149] Certain traditional accounts state that Mahāyāna sūtras were hidden away or kept safe by divine beings like Nagas or bodhisattvas until the time came for their dissemination. [150][151]

Similarly, some sources also state that Mahāyāna teachings were revealed by other

Buddhas, bodhisattvas and devas to a select number of individuals (often through visions or dreams).[148] Some scholars have seen a connection between this idea and Mahāyāna meditation practices which involve the visualization of Buddhas and their Buddha-lands.[152]

Another argument that Indian Buddhists used in favor of the Mahāyāna is that its teachings are true and lead to awakening since they are in line with the Dharma. Because of this, they can be said to be "well said" (subhasita), and therefore, they can be said to be the word of the Buddha in this sense. This idea that whatever is "well spoken" is the Buddha's word can be traced to the earliest Buddhist texts, but it is interpreted more widely in Mahāyāna.[153] From the Mahāyāna point of view, a teaching is the "word of the Buddha" because it is in accord with the Dharma, not because it was spoken by a specific individual (i.e. Gautama).[154] This idea can be seen in the writings of Shantideva (8th century), who argues that an "inspired utterance" is the Buddha word if it is "connected with the truth", "connected with the Dharma", "brings about renunciation of kleshas, not their increase" and "it shows the laudable qualities of nirvana, not those of samsara".[155]

The modern Japanese Zen Buddhist scholar D. T. Suzuki similarly argued that while the Mahāyāna sūtras may not have been directly taught by the historical Buddha, the "spirit and central ideas" of Mahāyāna derive from the Buddha. According to Suzuki, Mahāyāna evolved and adapted itself to suit the times by developing new teachings and texts, while maintaining the spirit of the Buddha.[156]

#### Claims of superiority

Mahāyāna often sees itself as penetrating further and more profoundly into the Buddha's Dharma. An Indian commentary on the Mahāyānasamgraha, gives a classification of teachings according to the capabilities of the audience:[157]

According to disciples' grades, the Dharma is classified as inferior and superior. For example, the inferior was taught to the merchants Trapuṣa and Ballika because they were ordinary men; the middle was taught to the group of five because they were at the stage of saints; the eightfold Prajñāpāramitās were taught to bodhisattvas, and [the Prajñāpāramitās] are superior in eliminating conceptually imagined forms. - Vivṛtaguhyārthapiṇḍavyākhyā

There is also a tendency in Mahāyāna sūtras to regard adherence to these sūtras as generating spiritual benefits greater than those that arise from being a follower of the non-Mahāyāna approaches. Thus the Śrīmālādevī Sūtra claims that the Buddha said that devotion to Mahāyāna is inherently superior in its virtues to following the śrāvaka or pratyekabuddha paths.[158]

The commentary on the Abhidharmasamuccaya gives the following seven reasons for the "greatness" of the Mahayana:[159]

Greatness of support (ālambana): the path of the bodhisattva is supported by the limitless teachings of the Perfection of Wisdom in One Hundred Thousand Verses and other texts;

Greatness of practice (pratipatti): the comprehensive practice for the benefit of self and others (sva-para-artha);

Greatness of understanding (jñāna): from understanding the absence of self in persons and phenomena (pudgala-dharma-nairātmya);

Greatness of energy (vīrya): from devotion to many hundreds of thousands of difficult tasks during three incalculable great aeons (mahākālpa);

Greatness of resourcefulness (upāyakaūśalya): because of not taking a stand in Saṃsāra or Nirvāṇa;

Greatness of attainment (prāpti): because of the attainment of immeasurable and uncountable powers (bala), confidences (vaiśāradya), and dharmas unique to Buddhas (āveśika-buddhadharma);

Greatness of deeds (karma): because of willing the performance of the deeds of a Buddha until the end of Saṃsāra by displaying awakening, etc.

Practice

Tibetan Buddhist prayer festival (monlam) at Bodh Gaya

Mahāyāna Buddhist practice is quite varied. A common set of virtues and practices which is shared by all Mahāyāna traditions are the six perfections or transcendent virtues (pāramitā). Another central practice advocated by numerous Mahāyāna sources is focused around "the acquisition of merit, the universal currency of the Buddhist world, a vast quantity of which was believed to be necessary for the attainment of Buddhahood".[160]

Devotion, ritual and meritorious practices

An elderly Tibetan woman with a prayer wheel inscribed with mantras

Devotees chanting before an image of Guanyin (a feminine form of Avalokiteshvara), at Longshan Temple, Taipei, Taiwan.

Indian Mahayana Buddhist practice included numerous elements of devotion and ritual, which were considered to generate much merit (punya) and to allow the devotee to obtain the power or spiritual blessings of the Buddhas and bodhisattvas. These elements remain a key part of Mahayana Buddhism today. Some key Mahayana practices in this vein include:

Devotion to Buddhas and Bodhisattvas: Mahayana bodhisattvas like Avalokiteśvara, Mañjuśrī, Tara and Amitābha Buddha are central objects of devotion. Practitioners may recite their names or mantras, bow in front of their statues and offer prayers and physical offerings like flowers and incense to receive their blessings, guidance, or assistance in achieving enlightenment or rebirth in a pure land.[161][162][163] In temples and monasteries, offering ceremonies (pūjās) are performed by monks in specific shrines with Buddha statues and other artwork. Donating or contributing money

to the building of a Buddha statue or shrine is also another way to practice devotion to these figures.

Formally taking bodhisattva vows (prāṇidhāna) which entails formally reciting several vows or resolutions to follow the bodhisattva path.[164]

Text focused practices: The reading, listening to, recitation, memorization, and study of Mahayana sutras, as well as the teaching of their content to others, was major practice in Indian Mahayana and remains influential today.[165] Furthermore, sutra copying, the handwriting of Mahayana sūtra manuscripts (or funding such a project) is also considered a very meritorious act.[166] Sūtra veneration was also practiced, with the physical text treated as a sacred object, often placed on altars, adorned with offerings and communally recited.[167]

Chanting: Buddhist chanting or recitation of sutras, prayers, mantras, and dhāraṇīs is another major ritual element in Mahayana.[168] One text which seems to have been popular in India was the Aspiration Prayer for Good Conduct (Bhadracaryā-prāṇidhāna or Samantabhadra-caryā-prāṇidhāna).[169] In East Asian Mahayana, one of the most widely chanted texts is the Heart Sutra.

Holy sites and temples: Indian Mahayana Buddhists often performed devotional practices in specific holy sites, which often included stupas, temples, shrines (chaitya) with Buddha statues and other shrines and Buddhist caves. Mahayana temples which focused on housing a central Buddha image became the norm during the Gupta period. [170] Pilgrims would often circumambulate the sites, make offerings of flowers, incense, and light, and engage in acts of reverence such as bowing or prostrating. Buddhist temples, stupas and shrines remain an important element of Mahayana Buddhism. "Seven part worship" (saptāṅgapūjā or saptavidhā anuttarapūjā), an Indic Mahayana ritual formula which included: vandana (obeisance, bowing) puja (worship), going for refuge, confession of bad deeds (papadesana), rejoicing in merit of all good deeds (anumodana), prayer (adhyesana) and requesting Buddhas to teach (yacana), atmabhavadi-parityagah (surrender) and pariṇāmanā (the transfer of one's merit to others).[171] These ritual elements remain important in Mahayana Buddhist ritual practice. For example, these elements are incorporated into modern Tibetan Buddhist sadhanas (ritual recitations, meditation rituals) and they are also incorporated into East Asian Buddhist rituals (such as confession rites, and refuge rituals).

The bodhisattva perfections

Mahāyāna sūtras, especially those of the Prajñāpāramitā genre, teach the practice of the six transcendent virtues or perfections (pāramitā) as part of the path to Buddhahood. Special attention is given to transcendent knowledge (prajñāpāramitā), which is seen as a primary virtue.[172] According to Donald S. Lopez Jr., the term pāramitā can mean "excellence" or "perfection" as well as "that which has gone beyond" or "transcendence".[173]

The Prajñāpāramitā sūtras, and a large number of other Mahāyāna texts list six perfections:[174][175][160]

Dāna pāramitā: generosity, charity, giving

Śīla pāramitā: virtue, discipline, proper conduct (see also: Bodhisattva precepts)

Kṣānti pāramitā: patience, tolerance, forbearance, acceptance, endurance

Vīrya pāramitā: energy, diligence, vigour, effort

Dhyāna pāramitā: one-pointed concentration, contemplation, meditation

Prajñā pāramitā: transcendent wisdom, spiritual knowledge

This list is also mentioned by the Theravāda commentator Dhammapala, who describes it as a categorization of the same ten perfections of Theravada Buddhism. According to Dhammapala, Sacca is classified as both Śīla and Prajñā, Mettā and Upekkhā are classified as Dhyāna, and Adhiṭṭhāna falls under all six.[175] Bhikkhu Bodhi states that the correlations between the two sets show there was a shared core before the Theravada and Mahayana schools split.[176]

In the Ten Stages Sutra and the Mahāratnakūṭa Sūtra, four more pāramitās are listed: [107]

7. Upāya pāramitā: skillful means

8. Pratiṣṭhāna pāramitā: vow, resolution, aspiration, determination, this related to the bodhisattva vows

9. Bala pāramitā: spiritual power

10. Jñāna pāramitā: knowledge  
Meditation

Japanese Sōtō Zen Buddhist monk meditating and begging for alms at Oigawa, Kyoto.

Zen master Bodhidharma meditating, Ukiyo-e woodblock print by Tsukioka Yoshitoshi, 1887

Mahāyāna Buddhism teaches a vast array of meditation practices. These include meditations which are shared with the early Buddhist traditions, including mindfulness of breathing; mindfulness of the unattractiveness of the body; loving-kindness; the contemplation of dependent origination; and mindfulness of the Buddha.[177][178] In Chinese Buddhism, these five practices are known as the "five methods for stilling or pacifying the mind" and support the development of the stages of dhyana.[179]

The Yogācārabhūmi-Śāstra (compiled c. 4th century), which is the most comprehensive Indian treatise on Mahāyāna practice, discusses classic Buddhist numerous meditation methods and topics, including the four dhyānas, the different kinds of samādhi, the development of insight (vipaśyanā) and tranquility (śamatha), the four foundations of mindfulness (smṛtyupasthāna), the five hindrances (nivarāṇa), and classic Buddhist meditations such as the contemplation of unattractiveness, impermanence (anitya), suffering (duḥkha), and contemplation death (maraṇasaṃjñā).[180]

Other works of the Yogācāra school, such as Asaṅga's Abhidharmasamuccaya, and Vasubandhu's Madhyāntavibhāga-bhāṣya also discuss meditation topics such as mindfulness, smṛtyupasthāna, the 37 wings to awakening, and samadhi.[181]

A very popular Mahāyāna practice from very early times involved the visualization of a

Buddha while practicing mindfulness of a Buddha (buddhānusmṛti) along with their Pure Land. This practice could lead the meditator to feel that they were in the presence of the Buddha and in some cases it was held that it could lead to visions of the Buddhas, through which one could receive teachings from them.[182]

This meditation is taught in numerous Mahāyāna sūtras such as the Pure Land sutras, the Akṣobhya-vyūha and the Pratyutpanna Samādhi.[183][184] The Pratyutpanna states that through mindfulness of the Buddha meditation one may be able to meet this Buddha in a vision or a dream and learn from them.[185]

Similarly, the Samādhirāja Sūtra for states that:[186]

Those who, while walking, sitting, standing, or sleeping, recollect the moon-like Buddha, will always be in Buddha's presence and will attain the vast nirvāṇa. His pure body is the colour of gold, beautiful is the Protector of the World. Whoever visualizes him like this practises the meditation of the bodhisattvas.

An 18th century Mongolian miniature which depicts a monk generating a tantric visualization

In the case of Pure Land Buddhism, it is widely held that the practice of reciting the Buddha's name (called nianfo in Chinese and nembutsu in Japanese) can lead to rebirth in a Buddha's Pure Land, as well as other positive outcomes. In East Asian Buddhism, the most popular Buddha used for this practice is Amitabha.[182][187]

East Asian Mahāyāna Buddhism also teaches numerous unique meditation methods, including the Chan (Zen) practices of huatou, koan meditation, and silent illumination (Chinese: mòzhào, which developed into the Japanese shikantaza method). Indo-Tibetan Buddhism also includes numerous unique forms of Mahāyāna contemplations, such as tonglen ("sending and receiving"), lojong ("mind training") and samatha-vipasyana.

There are also numerous meditative practices that are generally considered to be part of a separate category rather than general or mainstream Mahāyāna meditation. These are the various practices associated with Vajrayāna (also termed Mantrayāna, Secret Mantra, Buddhist Tantra, and Esoteric Buddhism). This family of practices, which include such varied forms as Deity Yoga, Dzogchen, Mahamudra, the Six Dharmas of Nāropa, the recitation of mantras and dharanis, and the use of mudras and mandalas, are very important in Tibetan Buddhism as well as in some forms of East Asian Mantrayāna like Chinese Esoteric Buddhism, Shingon, and Tendai.

Scripture

Astasahasrika Prajñāparamita Manuscript. Prajñāparamita and Scenes from the Buddha's Life (top), Maitreya and Scenes from the Buddha's Life (bottom), c. 1075

Frontispiece of the Chinese Vajracchedikā Prajñāpāramitā Sūtra, the oldest known dated printed book in the world

Mahāyāna Buddhism takes the basic teachings of the Buddha as recorded in early scriptures as the starting point of its teachings, such as those concerning karma and rebirth, anātman, emptiness, dependent origination, and the Four Noble Truths.

Mahāyāna Buddhists in East Asia have traditionally studied these teachings in the Āgamas preserved in the Chinese Buddhist canon. "Āgama" is the term used by those traditional Buddhist schools in India who employed Sanskrit for their basic canon. These correspond to the Nikāyas used by the Theravāda school.[188]

The surviving Āgamas in Chinese translation belong to at least two schools. Most of the Āgamas were never translated into the Tibetan canon, which according to Hirakawa, only contains a few translations of early sutras corresponding to the Nikāyas or Āgamas. [189] However, these basic doctrines are contained in Tibetan translations of later works such as the Abhidharmakośa and the Yogācārabhūmi-Śāstra.

Mahāyāna sutras

Main article: Mahayana sutras

In addition to accepting the essential scriptures of the early Buddhist schools as valid, Mahāyāna Buddhism maintains large collections of sūtras that are not recognized as authentic by the modern Theravāda school. The earliest of these sutras do not call themselves 'Mahāyāna', but use the terms vaipulya (extensive) sutras, or gambhira (profound) sutras.[38] These were also not recognized by some individuals in the early Buddhist schools. In other cases, Buddhist communities such as the Mahāsāṃghika school were divided along these doctrinal lines.[146]

In Mahāyāna Buddhism, the Mahāyāna sūtras are often given greater authority than the Āgamas. The first of these Mahāyāna-specific writings were written probably around the 1st century BCE or 1st-century CE.[190][191] Some influential Mahāyāna sutras are the Prajñāparamita sutras such as the Aṣṭasāhasrikā Prajñāpāramitā Sūtra, the Lotus Sutra, the Pure Land sutras, the Vimalakīrti Sutra, the Golden Light Sutra, the Avatamsaka Sutra, the Sandhinirmocana Sutra and the Tathāgatagarbha sūtras.

According to David Drewes, Mahāyāna sutras contain several elements besides the promotion of the bodhisattva ideal, including "expanded cosmologies and mythical histories, ideas of purelands and great, 'celestial' Buddhas and bodhisattvas, descriptions of powerful new religious practices, new ideas on the nature of the Buddha, and a range of new philosophical perspectives." [38] These texts present stories of revelation in which the Buddha teaches Mahāyāna sutras to certain bodhisattvas who vow to teach and spread these sutras after the Buddha's death.[38]

Regarding religious praxis, David Drewes outlines the most commonly promoted practices in Mahāyāna sutras were seen as means to achieve Buddhahood quickly and easily and included "hearing the names of certain Buddhas or bodhisattvas, maintaining

Buddhist precepts, and listening to, memorizing, and copying sutras, that they claim can enable rebirth in the pure lands Abhirati and Sukhavati, where it is said to be possible to easily acquire the merit and knowledge necessary to become a Buddha in as little as one lifetime." [38] Another widely recommended practice is anumodana, or rejoicing in the good deeds of Buddhas and Bodhisattvas.

The practice of meditation and visualization of Buddhas has been seen by some scholars as a possible explanation for the source of certain Mahāyāna sutras which are seen traditionally as direct visionary revelations from the Buddhas in their pure lands. Paul Harrison has also noted the importance of dream revelations in certain Mahāyāna sutras such as the Arya-svapna-nirdeśa which lists and interprets 108 dream signs. [192]

As noted by Paul Williams, one feature of Mahāyāna sutras (especially earlier ones) is "the phenomenon of laudatory self-reference – the lengthy praise of the sutra itself, the immense merits to be obtained from treating even a verse of it with reverence, and the nasty penalties which will accrue in accordance with karma to those who denigrate the scripture." [193] Some Mahāyāna sutras also warn against the accusation that they are not the word of the Buddha (buddhavacana), such as the Astasāhasrikā (8,000 verse) Prajñāpāramitā, which states that such claims come from Mara (the evil tempter). [194] Some of these Mahāyāna sutras also warn those who would denigrate Mahāyāna sutras or those who preach it (i.e. the dharmabhanaka) that this action can lead to rebirth in hell. [195]

Another feature of some Mahāyāna sutras, especially later ones, is increasing sectarianism and animosity towards non-Mahāyāna practitioners (sometimes called sravakas, "hearers") which are sometimes depicted as being part of the 'hīnayāna' (the 'inferior way') who refuse to accept the 'superior way' of the Mahāyāna. [92][104] As noted by Paul Williams, earlier Mahāyāna sutras like the Ugraparipṛcchā Sūtra and the Ajitasena sutra do not present any antagonism towards the hearers or the ideal of arhatship like later sutras do. [104] Regarding the bodhisattva path, some Mahāyāna sutras promote it as a universal path for everyone, while others like the Ugraparipṛcchā see it as something for a small elite of hardcore ascetics. [104]

In the 4th-century Mahāyāna Abhidharma work Abhidharmasamuccaya, Asaṅga refers to the collection which contains the āgamas as the Śrāvaka-piṭaka and associates it with the śrāvakas and pratyekabuddhas. [196] Asaṅga classifies the Mahāyāna sūtras as belonging to the Bodhisattva-piṭaka, which is designated as the collection of teachings for bodhisattvas. [196]

#### Other literature

Mahāyāna Buddhism also developed a massive commentarial and exegetical literature, many of which are called śāstra (treatises) or vṛttis (commentaries). Philosophical texts were also written in verse form (karikās), such as in the case of the famous Mūlamadhyamika-karikā (Root Verses on the Middle Way) by Nagarjuna, the foundational text of Madhyamika philosophy. Numerous later Madhyamika philosophers



like Candrakīrti wrote commentaries on this work as well as their own verse works.

Mahāyāna Buddhist tradition also relies on numerous non-Mahayana commentaries (śāstra), a very influential one being the Abhidharmakośa of Vasubandhu, which is written from a non-Mahayana Sarvastivada–Sautrantika perspective.

Vasubandhu is also the author of various Mahāyāna Yogacara texts on the philosophical theory known as vijñapti-matra (conscious construction only). The Yogacara school philosopher Asaṅga is also credited with numerous highly influential commentaries. In East Asia, the Satyasiddhi śāstra was also influential.

Another influential tradition is that of Dignāga's Buddhist logic whose work focused on epistemology. He produced the Pramāṇasamuccaya, and later Dharmakīrti wrote the Pramānavārttikā, which was a commentary and reworking of the Dignaga text.

Later Tibetan and Chinese Buddhists continued the tradition of writing commentaries.

### Classifications

Dating back at least to the Saṃdhi-nirmocana Sūtra is a classification of the corpus of Buddhism into three categories, based on ways of understanding the nature of reality, known as the "Three Turnings of the Dharma Wheel". According to this view, there were three such "turnings":[197]

In the first turning, the Buddha taught the Four Noble Truths at Varanasi for those in the śrāvaka vehicle. It is described as marvelous and wonderful, but requires interpretation and occasioning controversy.[198] The doctrines of the first turning are exemplified in the Dharmacakra Pravartana Sūtra. This turning represents the earliest phase of the Buddhist teachings and the earliest period in the history of Buddhism.

In the second turning, the Buddha taught the Mahāyāna teachings to the bodhisattvas, teaching that all phenomena have no-essence, no arising, no passing away, are originally quiescent, and essentially in cessation. This turning is also described as marvelous and wonderful, but requiring interpretation and occasioning controversy.[198] Doctrine of the second turning is established in the Prajñāpāramitā teachings, first put into writing around 100 BCE. In Indian philosophical schools, it is exemplified by the Mādhyamaka school of Nāgārjuna.

In the third turning, the Buddha taught similar teachings to the second turning, but for everyone in the three vehicles, including all the śrāvakas, pratyekabuddhas, and bodhisattvas. These were meant to be completely explicit teachings in their entire detail, for which interpretations would not be necessary, and controversy would not occur.[198] These teachings were established by the Saṃdhi-nirmocana Sūtra as early as the 1st or 2nd century CE.[199] In the Indian philosophical schools, the third turning is exemplified by the Yogācāra school of Asaṅga and Vasubandhu.

Some traditions of Tibetan Buddhism consider the teachings of Esoteric Buddhism and Vajrayāna to be the third turning of the Dharma Wheel.[200] Tibetan teachers, particularly of the Gelugpa school, regard the second turning as the highest teaching,

because of their particular interpretation of Yogācāra doctrine. The Buddha Nature teachings are normally included in the third turning of the wheel.[citation needed]

The different Chinese Buddhist traditions have different schemes of doctrinal periodization called *panjiao* which they use to organize the sometimes bewildering array of texts.

#### Relationship with the early texts

Scholars have noted that many key Mahāyāna ideas are closely connected to the earliest texts of Buddhism. The seminal work of Mahāyāna philosophy, Nāgārjuna's *Mūlamadhyamakakārikā*, mentions the canon's *Katyāyana Sūtra* (SA 301) by name, and may be an extended commentary on that work.[201] Nāgārjuna systematized the Mādhyamaka school of Mahāyāna philosophy. He may have arrived at his positions from a desire to achieve a consistent exegesis of the Buddha's doctrine as recorded in the canon. In his eyes, the Buddha was not merely a forerunner, but the very founder of the Mādhyamaka system.[202] Nāgārjuna also referred to a passage in the canon regarding "nirvanic consciousness" in two different works.[203]

Yogācāra, the other prominent Mahāyāna school in dialectic with the Mādhyamaka school, gave a special significance to the canon's *Lesser Discourse on Emptiness* (MA 190).[204] A passage there (which the discourse itself emphasizes) is often quoted in later Yogācāra texts as a true definition of emptiness.[205] According to Walpola Rahula, the thought presented in the Yogācāra school's *Abhidharma-samuccaya* is undeniably closer to that of the Pali Nikayas than is that of the Theravadin *Abhidhamma*. [206]

Both the Mādhyamikas and the Yogācārins saw themselves as preserving the Buddhist Middle Way between the extremes of nihilism (everything as unreal) and substantialism (substantial entities existing). The Yogācārins criticized the Mādhyamikas for tending towards nihilism, while the Mādhyamikas criticized the Yogācārins for tending towards substantialism.[207]

Key Mahāyāna texts introducing the concepts of *bodhicitta* and Buddha nature also use language parallel to passages in the canon containing the Buddha's description of "luminous mind" and appear to have evolved from this idea.[208][209]

#### Contemporary forms of Mahāyāna Buddhism

Map showing the three major Buddhist divisions

The main contemporary traditions of Mahāyāna in Asia are:

The East Asian Mahāyāna traditions of China, Korea, Japan and Vietnam, also known as "Eastern Buddhism". Peter Harvey estimates that there are about 360 million Eastern Buddhists in Asia.[210]

The Indo-Tibetan tradition (Vajrayana Buddhism, mainly found in Tibet, Inner Mongolia and elsewhere in Western China, Mongolia, Bhutan, parts of India, Nepal and Russia,

also known as "Northern Buddhism". According to Harvey "the number of people belonging to Northern Buddhism totals only around 18.2 million." [211]

There are also some minor Mahāyāna traditions practiced by minority groups, such as Newar Buddhism practiced by the Newar people (Nepal) and Azhaliism practiced by the Bai people (Yunnan).

Furthermore, there are also various new religious movements which either see themselves as Mahāyāna or are strongly influenced by Mahāyāna Buddhism. Examples of these include Hòa Hảo, Won Buddhism, Triratna Buddhist Community and Sōka Gakkai.

Lastly, there are various East Asian religious traditions which are strongly influenced by Mahāyāna Buddhism, though they may not be considered as being "Buddhist" per se. These include: Bon, Shugendo, Mongolian Yellow shamanism, Syncretized Shinto (shinbutsu-shūgō) and some of the Chinese salvationist religions.

Most of the major forms of contemporary Mahāyāna Buddhism are also practiced by Asian immigrant populations in the West and also by western convert Buddhists. For more on this topic see: Buddhism in the West.

## Chinese

Fo Guang Shan Buddha Museum, Taiwan

Contemporary Han Chinese Buddhism is practiced through many varied forms, such as Chan (Zen), Pure land, Tiantai, Huayan and mantra practices. This group is the largest population of Buddhists in the world. There are between 228 and 239 million Mahāyāna Buddhists in the People's Republic of China. This does not include the Tibetan and Mongolian Buddhists who practice Tibetan Buddhism. [210]

Harvey gives the East Asian Mahāyāna Buddhist population in other countries as follows: Taiwanese Buddhists, 8 million; Malaysian Buddhists, 5.5 million; Singaporean Buddhists, 1.5 million; Hong Kong, 0.7 million; Indonesian Buddhists, 4 million, The Philippines: 2.3 million. [210] Most of these are Han Chinese populations.

Chinese Buddhism can be divided into various different traditions (zong), such as Sanlun, Faxiang, Tiantai, Huayan, Pure Land, Chan, and Zhenyan. However, historically, most temples, institutions and Buddhist practitioners usually did not belong to any single "sect" (as is common in Japanese Buddhism), but draw from the various different elements of Chinese Buddhist thought and practice. This non-sectarian and eclectic aspect of Chinese Buddhism as a whole has persisted from its historical beginnings into its modern practice. [212][213]

The modern development of an ideology called Humanistic Buddhism (Chinese: 人間佛教; pinyin: rénjiān fójiào, more literally "Buddhism for the Human World") has also been influential on Chinese Buddhist leaders and institutions. [214] Chinese Buddhists may

also practice some form of religious syncretism with other Chinese religions, such as Taoism.[215] In modern China, the reform and opening up period in the late 20th century saw a particularly significant increase in the number of converts to Chinese Buddhism, a growth which has been called "extraordinary".[216]

#### Korean

Korean Buddhism is dominated by the Korean Seon school (i.e. Zen), primarily represented by the Jogye Order and the Taego Order. Korean Seon also includes some Pure Land practice.[217] It is mainly practiced in South Korea, with a rough population of about 10.9 million Buddhists.[210] There are also some minor Korean schools, such as the Cheontae (i.e. Korean Tiantai), and the esoteric Jingak and Chinŏn schools.

While North Korea's totalitarian government remains repressive and ambivalent towards religion, at least 11 percent of the population is considered to be Buddhist according to Williams.[218]

#### Japanese

Japanese Buddhism is divided into numerous traditions which include various sects of Pure Land Buddhism (the largest being Shin and Jodo), Tendai, Nichiren Buddhism, Shingon and three major sects of Zen (Soto, Rinzai and Obaku). There are also various Mahāyāna oriented Japanese new religions that arose in the post-war period. Many of these new religions are lay movements like Sōka Gakkai, Risshō Kōsei Kai and Agon Shū.[219]

An estimate of the Japanese Mahāyāna Buddhist population is given by Harvey as 52 million and a recent 2018 survey puts the number at 84 million.[210][220] It should also be noted that many Japanese Buddhists also participate in Shinto practices, such as visiting shrines, collecting amulets and attending festivals.[221]

#### Vietnamese

Vietnamese Buddhism is strongly influenced by the Chinese tradition. It is a synthesis of numerous practices and ideas. Vietnamese Mahāyāna draws practices from Vietnamese Thiền (Chan/Zen), Tịnh độ (Pure Land), and Mật Tông (Mantrayana) and its philosophy from Hoa Nghiêm (Huayan) and Thiên Thai (Tiantai).[222] New Mahāyāna movements have also developed in the modern era, perhaps the most influential of which has been Thích Nhất Hạnh's Plum Village Tradition, which also draws from Theravada Buddhism.

Though Vietnamese Buddhism suffered extensively during the Vietnam war (1955–1975) and during subsequent communist takeover of the south, there has been a revival of the religion since the liberalization period following 1986. There are about 43 million Vietnamese Mahāyāna Buddhists.[210]

#### Tibetan

The 14th Dalai Lama Tenzin Gyatso with Desmond Tutu in 2004. Due to his charisma, the Dalai Lama has become the international face of contemporary Tibetan Buddhism[223]

Indo-Tibetan Buddhism, Tibetan Buddhism or "Northern" Buddhism derives from the Indian Vajrayana Buddhism that was adopted in medieval Tibet. Though it includes numerous tantric Buddhist practices not found in East Asian Mahāyāna, Northern Buddhism still considers itself as part of Mahāyāna Buddhism (albeit as one which also contains a more effective and distinct vehicle or yana).

Contemporary Northern Buddhism is traditionally practiced mainly in the Himalayan regions and in some regions of North Central Asia, including:[224]

The Tibet autonomous region (PRC): 5.4 million

North and North-east India (Sikkhim, Ladakh, West Bengal, Jammu and Kashmir): 0.4 million

Pakistan: 0.16 million

Nepal: 2.9 million

Bhutan: 0.49 million

Mongolia: 2.7 million

Inner Mongolia (PRC): 5 million

Buryatia, Tuva and Kalmykia (Russian Federation): 0.7 million

As with Eastern Buddhism, the practice of northern Buddhism declined in Tibet, China and Mongolia during the communist takeover of these regions (Mongolia: 1924, Tibet: 1959). Tibetan Buddhism continued to be practiced among the Tibetan diaspora population, as well as by other Himalayan peoples in Bhutan, Ladakh and Nepal.

Post-1980s though, Northern Buddhism has seen a revival in both Tibet and Mongolia due to more liberal government policies towards religious freedom.[225] Northern Buddhism is also now practiced in the Western world by western convert Buddhists.

Relationship to the Theravada school

Main article: Theravada

Role of the Bodhisattva

In the early Buddhist texts, and as taught by the modern Theravada school, the goal of becoming a teaching Buddha in a future life is viewed as the aim of a small group of individuals striving to benefit future generations after the current Buddha's teachings have been lost, but in the current age there is no need for most practitioners to aspire to this goal. Theravada texts do, however, hold that this is a more perfectly virtuous goal. [226]

Paul Williams writes that some modern Theravada meditation masters in Thailand are popularly regarded as bodhisattvas.[227]

Cholvijarn observes that prominent figures associated with the Self perspective in Thailand have often been famous outside scholarly circles as well, among the wider populace, as Buddhist meditation masters and sources of miracles and sacred amulets.

Like perhaps some of the early Mahāyāna forest hermit monks, or the later Buddhist Tantrics, they have become people of power through their meditative achievements. They are widely revered, worshipped, and held to be arhats or (note!) bodhisattvas.

#### Theravāda and Hīnayāna

In the 7th century, the Chinese Buddhist monk Xuanzang describes the concurrent existence of the Mahāvihāra and the Abhayagiri Vihāra in Sri Lanka. He refers to the monks of the Mahāvihāra as the "Hīnayāna Sthaviras" (Theras), and the monks of the Abhayagiri Vihāra as the "Mahāyāna Sthaviras".[228] Xuanzang further writes:[229]

The Mahāvihāravāsins reject the Mahāyāna and practice the Hīnayāna, while the Abhayagirivihāravāsins study both Hīnayāna and Mahāyāna teachings and propagate the Tripiṭaka.

The modern Theravāda school is usually described as belonging to Hīnayāna.[230][231][232][233][234] Some authors have argued that it should not be considered such from the Mahāyāna perspective. Their view is based on a different understanding of the concept of Hīnayāna. Rather than regarding the term as referring to any school of Buddhism that has not accepted the Mahāyāna canon and doctrines, such as those pertaining to the role of the bodhisattva,[231][233] these authors argue that the classification of a school as "Hīnayāna" should be crucially dependent on the adherence to a specific phenomenological position. They point out that unlike the now-extinct Sarvāstivāda school, which was the primary object of Mahāyāna criticism, the Theravāda does not claim the existence of independent entities (dharmas); in this it maintains the attitude of early Buddhism.[235][236][237]

Adherents of Mahāyāna Buddhism disagreed with the substantialist thought of the Sarvāstivādins and Sautrāntikas, and in emphasizing the doctrine of emptiness, Kalupahana holds that they endeavored to preserve the early teaching.[238] The Theravādins too refuted the Sarvāstivādins and Sautrāntikas (and other schools) on the grounds that their theories were in conflict with the non-substantialism of the canon. The Theravāda arguments are preserved in the Kathāvatthu.[239]

Some contemporary Theravādin figures have indicated a sympathetic stance toward the Mahāyāna philosophy found in texts such as the Heart Sūtra (Skt. Prajñāpāramitā Hṛdaya) and Nāgārjuna's Fundamental Stanzas on the Middle Way (Skt. Mūlamadhyamakakārikā).[240][241]

See also

Buddha-nature

Buddhist holidays

Creator in Buddhism

Dzogchen

Early Buddhist schools

Faith in Buddhism

Golden Light Sutra  
History of Buddhism  
Index of Buddhism-related articles  
Lotus Sutra  
Mahāyāna Mahāparinirvāṇa Sūtra  
Mahayana sutras  
Pure land  
Rebirth  
Schools of Buddhism  
Secular Buddhism  
Silk Road transmission of Buddhism  
Śūnyatā  
Tendai  
Tibetan Buddhism  
Zen  
Notes

Mahāyāna; /ˌmɑːhəˈjɑːnə/ MAH-hə-YAH-nə; Sanskrit: महायान, pronounced [məɦaːˈjaːnə], lit. 'Great Vehicle'; Chinese: 大乘; Vietnamese: Đại thừa

"The Mahayana, 'Great Vehicle' or 'Great Carriage' (for carrying all beings to nirvana), is also, and perhaps more correctly and accurately, known as the Bodhisattvayana, the bodhisattva's vehicle." Warder, A.K. (3rd edn. 1999). Indian Buddhism: p. 338

Karashima: "I have assumed that, in the earliest stage of the transmission of the Lotus Sūtra, the Middle Indic form *jāna* or \**jāna* (Pkt < Skt *jñāna*, *yāna*) had stood in these places ... I have assumed, further, that the Mahāyānist terms *buddha-yānā* ("the Buddha-vehicle"), *mahāyāna* ("the great vehicle"), *hīnayāna* ("the inferior vehicle") meant originally *buddha-jñāna* ("buddha-knowledge"), *mahājñāna* ("great knowledge") and *hīnajñāna* ("inferior knowledge")." Karashima, Seishi (2001). Some features of the Language of the Saddharma-puṇḍarīka-sūtra, Indo-Iranian Journal 44: 207–230

Warder: "The sudden appearance of large numbers of (Mahayana) teachers and texts (in North India in the second century AD) would seem to require some previous preparation and development, and this we can look for in the South." Warder, A.K. (3rd edn. 1999). Indian Buddhism: p. 335.

"The most important evidence – in fact the only evidence – for situating the emergence of the Mahayana around the beginning of the common era was not Indian evidence at all, but came from China. Already by the last quarter of the 2nd century CE, there was a small, seemingly idiosyncratic collection of substantial Mahayana sutras translated into what Erik Zürcher calls 'broken Chinese' by an Indoscythian, whose Indian name has been reconstructed as Lokaksema." Macmillan Encyclopedia of Buddhism (2004): p. 492

"Certainly, we have for this period an extensive body of inscriptions from virtually all parts of India. ... But nowhere in this extensive body of material is there any reference, prior to the fifth century, to a named Mahāyāna.", Macmillan Encyclopedia of Buddhism (2004): p. 493

"What is particularly disconcerting here is the disconnect between expectation and

reality: We know from Chinese translations that large numbers of Mahāyāna sutras were being composed in the period between the beginning of the common era and the fifth century. But outside of texts, at least in India, at exactly the same period, very different – in fact seemingly older – ideas and aspirations appear to be motivating actual behavior, and old and established Hinayana groups appear to be the only ones that are patronized and supported., Macmillan Encyclopedia of Buddhism (2004): p. 494

"In other words, once nontextual evidence is taken into account the picture changes dramatically. Rather than being datable to the beginning of the common era, this strand of Mahayana Buddhism, at least, appeared to have no visible impact on Indian Buddhist cult practice until the 2nd century, and even then what impact it had was extremely isolated and marginal, and had no lasting or long-term consequences – there were no further references to Amitabha in Indian image inscriptions. Almost exactly the same pattern occurs (concerning Mahayana) on an even broader scale when nontextual evidence is considered." Macmillan Encyclopedia of Buddhism (2004): p. 493

"There are, it seems, very few things that can be said with certainty about Mahayana Buddhism...But apart from the fact that it can be said with some certainty that the Buddhism embedded in China, Korea, Tibet, and Japan is Mahayana Buddhism, it is no longer clear what else can be said with certainty about Mahayana Buddhism itself, and especially about its earlier, and presumably formative, period in India.", Macmillan Encyclopedia of Buddhism (2004): p. 492

"It has become increasingly clear that Mahayana Buddhism was never one thing, but rather, it seems, a loosely bound bundle of many, and – like Walt Whitman – was large and could contain, in both senses of the term, contradictions, or at least antipodal elements." Macmillan Encyclopedia of Buddhism (2004): p. 492

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《增一阿含經·勸請品·八經》：「爾時，尊者拘絺羅便說此偈：『種種果不同，眾生趣亦然，自覺覺人者，我無此辯說。禪智解脫辯，憶本天眼通，能盡苦原本，我無此辯說。』爾時，須深女人便說此偈：『善逝有此智，質直無瑕穢，勇猛有所伏，求於大乘行。』」

印順《雜阿含經部類之整編》：「宋譯《雜阿含經》，譯出的時代遲了些，而譯者求那跋陀羅，是一位唯心大乘師，所以譯文中偶有大乘的名義。……「菩薩摩訶薩」的稱呼，受到了大乘的影響。不過，每成立一部派，就有部派所審定集成的經典，在傳承的同一宗派中，是不可能大事更張的。《雜阿含經》的「修多羅」部分，與『攝事分』所依經本一致，即可以證明。當然，經典在長期流傳中，會因時因地而有多少差別的。求那跋陀羅為唯心大乘師，所譯《雜阿含經》，就偶有一二大乘名義，然如依此而說宋譯《雜阿含經》，是大乘佛教時代所完成的，那就誤謬不經了！」

吳汝鈞《印度大乘佛教思想的特色》：「『阿含經』用「大乘」之名，大抵指佛的教法，而含有尊崇之意。這「大乘」自不同於爾後大乘佛教的「大乘」，但亦非全不相通。大乘佛教自有其發展，但其基本教理，並不遠離佛的本意。」

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"One of the most frequent assertions about the Mahayana is that it was a lay-influenced, or even lay-inspired and dominated, movement that arose in response to the increasingly closed, cold, and scholastic character of monastic Buddhism. This, however, now appears to be wrong on all counts...much of its [Hinayana's] program being in fact intended and designed to allow laymen and women and donors the opportunity and means to make religious merit." Macmillan Encyclopedia of Buddhism (2004): p. 494

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(function(){

var a=this||self;var c=document.querySelector("form");if(c){var d=function(b){b.key!=="Enter"||b.shiftKey||

(b.preventDefault(),c.submit&&c.submit());c.addEventListener("keydown",d);a.sbmIhf=d}}).call(this);(function(){(function(){function e(){d--;d||

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TyVYId:#0b57d0;--ZEpPmd:#c3d9fb;--QWaaaf:#638ed4;--DEeStf:#f5f8ff;--

TSWZlb:#e5edff;--BRLwE:#d3e3fd;--gS5jXb:#dadce0;--Aqn7xd:#d2d2d2;--

EpFNW:#fff;--Xqboce:#1f1f1f;--IXoxUe:#5e5e5e;--bbQxAb:#474747;--YLNNHc:#1f1f1f;--

TMYS9:#0b57d0;--JKqx2:#1a0dab;--rrJJUc:var(--Nsm0ce);--mXZkqc:#d2d2d2;--

Nsm0ce:#0b57d0;--vdwxpe:#a8c7fa;--ywz01c:#fbbc04;--XKMDxc:#f3f5f6;--

aYn2S:#f3f5f6;--Lm570b:#dee1e3}:root{--amnPwe:var(--IXoxUe);--ZXiaGf:#fff;--

EoKObe:#fff;--clehld:#fff;--ONhrGd:#dadce0;--  
gVUKcd:rgba(0,0,0,0.6)}.Xx7Mif{contain:style;position:relative}.E5eFb{width:100%;cont  
ain:size  
style}.LoygGf{width:100%;display:block}.CTOaxb{position:fixed;top:0;left:0;contain:size  
layout style}.OMqmf{position:sticky;top:0}.zLSRge{border-bottom:1px solid var(--  
gS5jXb)}.AX1Qf{position:absolute;left:50vw;width:1px;height:2px;visibility:hidden;pointer  
-events:none}.oDzakc{display:inline-  
block;float:left}.wXpfVb{position:relative;top:-1px;width:100%;height:0}.caNvfd{--  
vZe0jb:#dadce0;--nwXobb:#d2d2d2;--VuZXBd:#474747;--uLz37c:#5e5e5e;--  
jINu6c:#1f1f1f;--TyVYld:#0b57d0;--ZEpPmd:#d2d2d2;--QWaaaf:#a9acaa;--  
DEeStf:#f3f5f6;--TSWZlb:#f3f5f6;--BRLwE:#dee1e3;--Aqn7xd:#d2d2d2;--  
gS5jXb:#dadce0;--EpFNW:#fff;--Xqboce:#1f1f1f;--IXoxUe:#5e5e5e;--bbQxAb:#474747;--  
YLNNHc:#1f1f1f;--TMYS9:#0b57d0;--JKqx2:#1a0dab;--rrJJUc:#0b57d0;--  
mXZkqc:#d2d2d2;--Nsm0ce:#0b57d0;--vdwxpe:#a8c7fa;--yww01c:#fbbc04;--  
XKMDxc:#f3f5f6;--aYn2S:#f3f5f6;--Lm570b:#dee1e3;--KIZPne:#a3c9ff;--  
xPpiM:#001d35;--Ehh4mf:#0b57d0}.v0rrvd{padding-  
bottom:16px}.jhZvod{bottom:0;height:0;position:fixed;z-  
index:999;left:16px;right:auto}.Wu0v9b{box-sizing:border-  
box;visibility:hidden;position:relative}@media (min-width:569px) and (min-height:569px)  
{.jhZvod{text-align:center}.Wu0v9b{display:inline-block;max-width:568px;min-  
width:288px;text-align:left}}.zJUuqf{margin-bottom:4px}.AB4Wff{margin-left:16px}  
@keyframes g-snackbar-show{from{pointer-events:none;transform:translateY(0)}  
to{transform:translateY(-100%)}}@keyframes g-snackbar-  
hide{from{transform:translateY(-100%)}to{transform:translateY(0)}}@keyframes g-  
snackbar-show-content{from{opacity:0}}@keyframes g-snackbar-hide-  
content{to{opacity:0}}.LH3wG{bottom:0;height:0;position:fixed;z-index:999}.yK6jqe{box-  
sizing:border-box;visibility:hidden}.rTYTNb{animation:g-snackbar-hide .4s cubic-  
bezier(0.4,0,0.2,1) both;visibility:inherit}.UewPMd.UewPMd{animation:g-snackbar-show  
.5s cubic-bezier(0.4,0,0.2,1) both;visibility:inherit}.b77HKf{background-  
color:#323232;padding:0 24px}.rlxsve{align-  
items:center;display:flex}.rTYTNb .rlxsve{animation:g-snackbar-hide-content .35s cubic-  
bezier(0.4,0,0.2,1) both}.UewPMd .rlxsve{animation:g-snackbar-show-content .35s  
cubic-bezier(0.4,0,0.2,1) .15s both}.Txngnb.Txngnb{line-  
height:20px}.Txngnb{color:#fff;flex:1 1 auto;margin:14px 0;word-break:break-word}  
@media (min-width:569px) and (min-height:569px){.LH3wG{text-  
align:center}.yK6jqe{display:inline-block;max-width:568px;min-width:288px;text-  
align:left}.b77HKf{border-radius:8px}}.LH3wG{left:0;right:0}.yK6jqe{position:relative}  
html:active-view-transition-type(sb) .RNNXgb{view-transition-name:sb}.yUTMj{font-  
family:Roboto,Arial,sans-serif;font-weight:400}.wHYITd{font-family:Roboto,Arial,sans-  
serif;font-size:14px;line-  
height:22px}.MTlaKb,.LwDUdc,.FAoEle,.RITCPd,.wPNfjb,.caNvfd,.Vnob4b,.bbxTBb,.Dpg  
mK,.YKUhf,.uNnvb,.aVsZpf,.RoOVmf,.dlfvQd,.V3Ezn,.Enb9pe,.mYuoaf,.kJSB8,.tUr4Kc  
,.iQMtqe{--Yi4Nb:var(--mXZkqc);--pEa0Bc:var(--bbQxAb);--kloG3:var(--mXZkqc);--  
YaleMb:var(--XKMDxc);--Pa8Wlb:var(--Nsm0ce);--izGsqb:var(--Nsm0ce);--  
todMNcl:var(--EpFNW);--p9J9c:var(--Nsm0ce)}:root{--KIZPne:#a3c9ff;--

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xPpiM:#001d35;--Ehh4mf:var(--Nsm0ce)}:root{--Yi4Nb:#d2d2d2;--pEa0Bc:#474747;--
kloG3:#d2d2d2;--YaleMb:#f7f8f9;--Pa8Wlb:#0b57d0;--izGsqb:#0b57d0;--todMNcl:#fff;--
p9J9c:#0b57d0}(function(){google.tick("load","sct",void
0,"SearchBodyStart");}).call(this);.main.QRYxYe{margin-top:calc(6px +
12px)}.s3IB3{width:40px;height:40px}.S3PB2d{margin:auto}.OvQkSb{border-
radius:9999px}.sr9hec{display:block;position:relative;z-
index:0}.sr9hec{cursor:pointer}.sr9hec{border:1px solid
#dadce0}.sr9hec:focus{outline:none}.sr9hec.U8v51e{position:absolute;left:0;right:0;top:
0;bottom:0;width:24px;height:24px}.wgbRNb.btpNFe:hover.g-fab{color:#70757a!
important}.wgbRNb.btpNFe{height:36px;width:36px;opacity:.9}.wgbRNb.btpNFe:hover{o
pacity:1}.wgbRNb.btpNFe.pQXcHc,.wgbRNb.btpNFe.pQXcHc:hover{opacity:0}.bCwll.bt
pNFe.g-fab,.VdehBf.btpNFe.g-fab{box-shadow:0 0 0 1px rgba(0,0,0,.04),0 4px 8px 0
rgba(0,0,0,.2);cursor:pointer;height:36px;width:36px}.bCwll.btpNFe{left:-18px}.VdehBf.bt
pNFe{right:-18px}@media (max-width:683px)
{.bCwll.btpNFe{left:-8px}.VdehBf.btpNFe{right:-7px}}.OZ5bRd{margin-
bottom:auto;margin-top:auto}.FJCJfd{border:none;box-shadow:0px 1px 3px
rgba(60,64,67,0.24)}.Gcxb4e{display:block;position:relative}.HTOhZ{display:block;overfl
ow-x:auto;overflow-y:clip;position:relative;white-
space:nowrap;transform:translate3d(0,0,0);transform:translate3d(0,0,0);}.HTOhZ::-
webkit-scrollbar{display:none}.JpOecb{display:inline-block}.XVMlrc{text-
decoration:none;cursor:pointer}.XVMlrc:hover{text-
decoration:none}.olrp5b{display:flex}.mTpL7c{display:inline-
block}.mTpL7c:not([disabled]){cursor:pointer}.R0DW9c:not(.vpR9sb)
{display:none}.R0DW9c{position:relative}.vH6rvf{padding:8px 0;z-
index:100;opacity:0;top:0;position:absolute;background:#fff;border-
radius:8px;overflow:hidden}@media (forced-colors:active){.vH6rvf{outline:1px
solid}}.IRx9Tb{max-
width:280px}.bsmXxe{display:contents}.Gcxb4e.HZX55,.Gcxb4e.B2p7if{display:none}.
Gcxb4e:hover.HZX55,.Gcxb4e:hover.B2p7if{display:block}.wgbRNb{cursor:pointer;heig
ht:72px;position:absolute;display:block;visibility:inherit;width:36px;bottom:0;opacity:0.8;t
op:0;z-index:101}.wgbRNb.tHT0l{-webkit-transition:opacity 0.5s,visibility
0.5s}.wgbRNb:hover{opacity:0.9}.wgbRNb.pQXcHc,.wgbRNb.pQXcHc:hover{cursor:def
ault;opacity:0;visibility:hidden}.LJefwf{display:none}Filters and TopicsAI
ModeAllImagesVideosNewsShoppingShort
videosMoreBooksForumsWebMapsTools(function(){
(this||self).Wufxzb=function(c,e,f,l,k){var
d=document.getElementById(c);if(d&&(d.offsetWidth!==0||d.offsetHeight!==0))
{c=d.querySelector("div");var g=c.scrollWidth-c.offsetWidth,h=Math.min(e?
g:0,g);c.scrollLeft=e&&(l?f)?0:h;var a=d.getElementsByTagName("g-left-button")
[0],b=d.getElementsByTagName("g-right-button")[0];a&&b&&(e=RegExp("\\btHT0l\\
b"),f=RegExp("\\bpQXcHc\\
b"),a.className=a.className.replace(e,""),b.className=b.className.replace(e,""),h
===0?a.className="pQXcHc "+a.className:(a.className=
a.className.replace(f,""),k&&c.classList.add("pA30Ne")),h===g?
b.className="pQXcHc "+b.className:

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(b.className=b.className.replace(f,""),k&&c.classList.add("FpCCub")),setTimeout(function(){a.className+=" tHT0l";b.className+=" tHT0l"},50))}};}).call(this);(function(){var id='_uZo_aZ3TN4SzqtsPr-f2wQM_23';var rtl=false;var gecko=false;var edge=false;var soh=true;(this||self).Wufxzb(id,rtl,gecko,edge,soh);})();gTMtLb{z-index:1101;position:absolute;top:-1000px}@keyframes pulse-animation {0%{opacity:1}50%{animation-timing-function:cubic-bezier(0,0,1,1);opacity:0.5}100%{opacity:1}}Any timeAny timePast hourPast 24 hoursPast weekPast monthPast yearCustom range...Custom date rangeFromToGoAll resultsAll resultsVerbatimAdvanced SearchAbout 22,500,000 results (0.30s) Ctrl+Shift+X to select.WE0UJf:empty{display:none}.WE0UJf{min-height:12px;-webkit-transition:height .22s ease-in-out}.M8Ogle{flex:0 auto;}.Pm5mre{max-width:var(--center-width);}.M8Ogle h3{font-size:20px;line-height:26px}.ZpdpPe:empty{padding-bottom:16px}Search Results(function(){var src='https://www.googleadservices.com/pagead/conversion/16521530460/?gad_source\x3d1\x26adview_type\x3d1\x26adview_query_id\x3dClySxbXsvpEDFdRUfwAdDsc1Lw';var sendAft=false;(function(){function a(){var c=src,b=new Image;b.src=c;b.setAttribute("attributionsrc","")}sendAft&&google&&google.caft?google.caft(function(){a()})a();}).call(this);})();(function(){var src='https://www.google.com/pagead/1p-conversion/16521530460/?gad_source\x3d1\x26adview_type\x3d4\x26adview_query_id\x3dClySxbXsvpEDFdRUfwAdDsc1Lw';var sendAft=false;(function(){function a(){var c=src,b=new Image;b.src=c;b.setAttribute("attributionsrc","")}sendAft&&google&&google.caft?google.caft(function(){a()})a();}).call(this);})();.SIP8xc{text-transform:none}.VDgVie{text-align:center}.sjVJQd{font-family:Google Sans,Roboto,Arial,sans-serif;font-size:14px;font-weight:500;line-height:20px}.Pqkn2e{font-family:Roboto,Arial,sans-serif;font-size:16px;line-height:24px}.FR7ZSc{color:var(--rrJJUc)}.FR7ZSc .niO4u{background:transparent;border-color:var(--Yi4Nb)}.FR7ZSc: hover .niO4u::after{background:rgba(11,87,208,.08)}.FR7ZSc:active .niO4u::after{background:rgba(11,87,208,.24)}.NQYJvc .niO4u{padding:11px 15px}.NQYJvc .d3o3Ad{left:-6px}.NQYJvc .T2xY9b.T2xY9b{left:6px}body{--nvzc1:var(--DEeStf);--nvzc2:var(--TSWZlb);--nvzc3:var(--BRLwE);--nvzc4:var(--xhUGwc);--nvzc5:var(--XKMDxc);--nvzc6:var(--aYn2S);--nvzc7:var(--Lm570b);--nvzc8:var(--KIZPne);--nvzc9:var(--jINu6c);--nvzc10:var(--uLz37c);--nvzc11:var(--YLNNHc);--nvzc12:var(--IXoxUe);--nvzc13:var(--bbQxAb);--nvzc14:var(--TMYS9);--nvzc15:var(--JKqx2);--nvzc16:var(--mXZkqc);--nvzc17:var(--gS5jXb);--nvzc18:var(--amnPwe);--nvzc19:var(--Nsm0ce);--nvzc20:var(--rrJJUc);--nvzc21:var(--ZXiaGf);--nvzc22:var(--EoKObe);--nvzc23:var(--clehld);--nvzc24:var(--ONhrGd);--nvzc25:var(--gVUKcd);--nvzc28:#f1f3f4;--nvzc32:var(--Lm570b);--nvzc34:rgba(0,0,0,0.03)}body{--nvzc27:#000;--nvzc29:var(--BRLwE);--nvzc30:#146c2e;--nvzc31:#b3261e;--nvzc33:#ecedef;--nvzc36:#f7f8fa;--nvzc37:#f0f2f5}.YzCcne{--m3c1:#0b57d0;--m3c2:rgba(245,248,255,0.5);--m3c3:#fff;--m3c5:#f5f8ff;--m3c6:#e5edff;--m3c7:#d3e3fd;--m3c9:#001d35;--m3c10:#545d7e;--m3c11:#001d35;--m3c12:#0b57d0;--m3c13:#a3c9ff;--m3c14:#001d35;--m3c15:#0b57d0;--m3c16:#545d7e;--m3c17:#a3c9ff;--m3c18:#446eff;--m3c19:#b1c5ff;--m3c20:#c8ecff;--
```

m3c21:#a6c8ff;--m3c22:#d3e3fd;--m3c23:#3179ed}.YzCcne{--m3c22:var(--BRLwE)}.rNSxBe{padding-bottom:20px}@media (max-width:1163.98px){.s7d4ef{width:auto}.hdzaWe{margin:auto}}.X6JNf{background:unset}.GkDqAd{padding-left:0;padding-right:0}.jloFI{font-family:Google Sans,Roboto,Arial,sans-serif;font-style:normal;font-weight:400;font-size:16px;line-height:24px;color:var(--m3c11);position:relative}.omFXYd,.KMCbD{border-bottom:1px solid var(--m3c17);width:100%;}.h7Tj7e{overflow-y:clip;position:relative}.h7Tj7e:not(.zc75bb).OS7YA{display:none}@keyframes fadeIn{from{opacity:0}to{opacity:1}}.WAUd4{padding:16px 0}.OZ9ddf{max-height:32px}.OZ9ddf{align-items:center;display:flex;flex-direction:row;grid-gap:16px;justify-content:space-between;position:relative}.Fzsovc,.YWpX0d{font-family:Google Sans,Roboto,Arial,sans-serif;z-index:1}.Fzsovc{font-weight:500;color:var(--m3c9);font-size:14px}@media (max-width:1163.98px){.OZ9ddf{width:auto}}.nk9vdc{display:flex;flex-direction:row;gap:16px;align-items:center}.QZvcUb{height:18px;width:18px}.xC2q7c{color:var(--bbQxAb);margin-top:1px}.QZvcUb:hover{cursor:pointer}.fWWlmf{display:block}.JzISke{margin-right:-10px}.YWpX0d{color:var(--IXoxUe);flex:1;font-size:16px;font-weight:400;line-height:24px}.LT6XE,.p2M1Qe{display:flow-root;color:var(--m3c11);--m3c9:#0a0a0a;--m3c11:#0a0a0a}.LT6XE{overflow-y:clip;position:relative}.LT6XE,.zNsLfb{overflow-wrap:break-word;max-width:100%}.RDmXvc{margin-left:calc(-1\*var(--center-abs-margin));padding-left:var(--center-abs-margin);background-image:linear-gradient(transparent 0px,rgba(255,255,255,0.9) 52px,#fff 80px)}.LrrQLb{height:148px}.RDmXvc{width:100%;position:absolute;transition:opacity 50ms linear;bottom:0;z-index:2}.in7vHe{background-color:inherit;color:var(--m3c11)!important;border:1px var(--m3c17) solid}.IACQkd{bottom:20px}.zNsLfb{background-color:#fff}.in7vHe:not(.BgrTif){max-width:632px;width:100%;}@media (max-width:799.98px){.in7vHe{max-width:unset}}@media (min-width:940px) and (max-width:1163.98px){.in7vHe{max-width:520px}}@media (min-width:800px) and (max-width:939.98px){.in7vHe{max-width:408px}}@media (max-width:1024px){.in7vHe{width:100%}}.zNsLfb{padding-top:0;padding-bottom:2px;position:relative}.zNsLfb{height:48px;transition:opacity 50ms linear;width:100%;z-index:2}.in7vHe{box-sizing:border-box;border-radius:999rem}.in7vHe.btku5b.niO4u{border:unset;height:48px;min-height:48px}.in7vHe.FR7ZSc.niO4u{border-color:transparent}.UaVNfd{color:var(--m3c15)}.MY2gn{margin-left:8px}.IACQkd{position:absolute;width:100%}@keyframes fadeIn{0%{opacity:0}100%{opacity:1}}AI OverviewAn AI Overview is not available for this searchCan't generate an AI overview right now. Try again later.AI Overview(function(){var k=this||self;var l;function m(b=document){b=b.querySelector?("."style[nonce]);return b==null?"":b.nonce||b.getAttribute("nonce")||"";var n=function(){this.g=k.document||document};n.prototype.appendChild=function(b,a){b.appendChild(a)};function p(b){var a=(l||=new n).g;var c="STYLE";a.contentType==="application/xhtml+xml"&&(c=c.toLowerCase());a=a.createElement(c);(c=m(document))&&a.setAttribute("nonce",c);a.setAttribute("data-late-



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css","");a.appendChild(document.createTextNode(b));document.head.appendChild(a)}
window._F_installCss=window._F_installCss||p;var q=class{constructor()
{this.counters=new Map}setInitialValue(b,a,c){return this.counters.get(b)===void 0||c?
(this.counters.set(b,a,!0):!1}getUniqueld(b){const a=this.counters.get(b)||
0;this.counters.set(b,a+1);return a}};var r={toString:function(b){let a=[],c=0;b-
=-2147483648;a[c+
+]="abcdefghijklmnopqrstuvwxyzABCDEFGHIJKLMNOPQRSTUVWXYZ".charAt(b%52);
for(b=Math.floor(b/52);b>0;)a[c+
+]="abcdefghijklmnopqrstuvwxyzABCDEFGHIJKLMNOPQRSTUVWXYZ0123456789".c
harAt(b%62),b=Math.floor(b/62);return a.join("")}};var v=function(b){b=t(b);let
a=2654435769,c=2654435769,d=314159265;const e=b.length;let f=e,g=0;const
h=function(){a=c;a-=d;a^=d>>>13;c-=d;c-=a;c^=a<<8;d-=a;d-=c;d^=c>>>13;a-=c;a-
=d;a^=d>>>12;c-=d;c-=a;c^=a<<16;d-=a;d-=c;d^=c>>>5;a-=c;a-=d;a^=d>>>3;c-=d;c-
=a;c^=a<<10;d-=a;d-=c;d^=c>>>15};for(;f>=12;f-
=12,g+=12)a+=u(b,g),c+=u(b,g+4),d+=u(b,g+8),h();d+=e;switch(f){case
11:d+=b[g+10]<<24;case 10:d+=b[g+9]<<16;case 9:d+=b[g+8]<<8;case
8:c+=b[g+7]<<24;case 7:c+=b[g+6]<<16;case 6:c+=b[g+5]<<8;case 5:c+=
b[g+4];case 4:a+=b[g+3]<<24;case 3:a+=b[g+2]<<16;case 2:a+=b[g+1]<<8;case
1:a+=b[g+0]}h());return r.toString(d)},t=function(b){const a=[];for(let c=0;c<b.length;c+
+)a.push(b.charCodeAt(c));return a},u=function(b,a){return b[a+0]+(b[a+1]<<8)+
(b[a+2]<<16)+(b[a+3]<<24)};const
w=window.Proxy,x=["etimQ","GOOGLE_FEEDBACK_START_ARGUMENTS"];function
y(b){const a=Object.create(null),c=Object.create(null);return new w(Object.create(b),
{get:(d,e)=>{if(!(e in c)){if(e in a)return a[e];d=b[e];return typeof d==="function"?
(a[e]=new w(d,{apply:(f,g,h)=>f.apply(b,h)}),a[e]:d}},set:(d,e,f)=>{if(x.includes(e))return e
in b||(b[e]=f,!0;a[e]=f;delete c[e];return!0),has:(d,e)=>e in c?!1:e in a?!0:e in
b,defineProperty:(d,e,f)=>{delete c[e];return
Reflect.defineProperty(a,e,f)},deleteProperty:(d,e)=>{c[e]=!0;return
Reflect.deleteProperty(a,e)},ownKeys:()=>>{const d=Reflect.ownKeys(b);for(var e of
Object.keys(a))d.indexOf(e)===-1&&d.push(e);for(const f of
Object.keys(c))e=d.indexOf(f),e!==-1&&d.splice(e,1);return d}}}}
function z(){const b=y(document);delete b.__wizmanager;delete
b.__wizdispatcher;const a=y(window);a.document=b;a.window=a;a._=a;const
c=k.google;var d=new w(c,{get:(e,f)=>{if(f!=="ia"&&f!=="airmd")return f==="aipf"||
f==="rairdcb"||f==="xjs"||f==="jd"?void 0:c[f]}});a.google=d;
(d=window.WIZ_global_data)&&(a.WIZ_global_data=new w(d,{get:(e,f)=>e[/_$/].test(f)?
v(f.replace(/_$/,"")):f},has:(e,f)=>(/_$/).test(f)?v(f.replace(/_$/,"")):f)in
e));b.defaultView=a;delete a.onerror;delete a.silk;delete a.userfeedback;return
a};function A(b){window.google=window.google||{};window.google.uniqueldService||
(window.google.uniqueldService=new q);const a=document.currentScript;let
c;if(a.__wp)c=a.__wp;else{c=z());a.__wp=c;c._F_jsUrl=a.src;c.guestRootElement=docu
ment.getElementById(a.dataset.gcid);c._ck=a.dataset.ck;c._rs=a.dataset.rs;const
d=a.dataset.t.replace(/^[/,","].replace(/[/,","].split(",").map(e=>Number(e));c._F_toggles=d;c._xjs_toggles=d}
a.dataset.gver&&B(a.dataset.gver);try{b.call(c,c)}finally{(b=a.__pr)&&b(c)}}

```

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function B(b){window.google.gvers||(window.google.gvers={});window.google.gvers[b]=!0}window.loaded_g_0=window.loaded_g_0||A;}).call(this);    (function()
{window.sn={_setImageSrc:function(b,c){const a=document.getElementById(` ${b}`);a!
==null&&(a.src=c,a.setAttribute("data-deferred","2"),google.rll(a,!0,
()=>{a.setAttribute("data-imgprocessed","true")}));});}).call(this);
```

Cryptography is the science of secure communication, using mathematical algorithms and keys to encrypt data (turning it into unreadable ciphertext) and decrypt it, ensuring confidentiality, integrity, authentication, and non-repudiation in digital systems, fundamental to secure web browsing (HTTPS), banking, and cryptocurrencies. It primarily uses symmetric (one shared key) and asymmetric (public/private key pairs) methods to protect information from unauthorized access. Core Concepts & Goals Confidentiality: Keeping data private (only intended recipient can read). Integrity: Ensuring data isn't altered during transit. Authentication: Verifying identities of senders/recipients. Non-Repudiation: Preventing senders from denying they sent a message. Key Types of Cryptography Symmetric-Key (Secret Key): Uses a single, shared secret key for both encryption and decryption (e.g., AES). Asymmetric-Key (Public Key): Uses a public key for encryption and a corresponding private key for decryption (e.g., RSA, ECC). Hash Functions: Creates unique fingerprints (hashes) of data to verify integrity. How It Works (Simplified) Plaintext: Original message. Encryption: Algorithm + Key turns plaintext into ciphertext (scrambled data). Ciphertext: Encrypted message. Decryption: Algorithm + Key turns ciphertext back into plaintext. Real-World Applications HTTPS (SSL/TLS): Secures website traffic. Passwords: Stores passwords securely. Digital Currencies: Secures transactions and wallets (e.g., Bitcoin). Secure Messaging/Email: Protects private communications. Introduction to Cryptography / Tutorials / Knowledge Base - GPGTools Support Cryptography is the science of using mathematics to encrypt and decrypt data. There are two types of cryptography: strong and weak...gpgtools.tenderapp.com What is Cryptography? - Kaspersky Confidentiality: Only the intended recipient can access and read the information, so conversations and data remain private. Integr...Kaspersky What is Cryptography? - AWS As security has advanced, the field of cryptography has expanded to include a broader range of security goals. These include messa...Amazon Web Services Cryptography 101: Key Principles, Major Types, Use Cases & Algorithms There are two main types of cryptography: symmetric-key (single key for both encryption and decryption, efficient for bulk data) a...Splunk What Is Cryptography and How Does It Work? - Black Duck What problems does cryptography solve? A secure system should provide several assurances such as confidentiality, integrity, and a...Black Duck Welcome to pyca/cryptography — Cryptography 47.0.0.dev1 ...Layout. cryptography is broadly divided into two levels. One with safe cryptographic recipes that require little to no configurati...pyca/cryptography What is Cryptography? Definition, Importance, Types - Fortinet Secret Key Cryptography \* Secret key cryptography, also known as symmetric encryption, uses a single key to encrypt and decrypt a ...Fortinet Introduction to Cryptography / Tutorials / Knowledge Base - GPGTools Support Cryptography is the science of using mathematics to encrypt and decrypt data. There are two types of cryptography: strong and weak...gpgtools.tenderapp.com What is Cryptography? - Kaspersky Confidentiality: Only the intended recipient can access and read the information, so conversations and data remain private. Integr...Kaspersky What

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Your feedback helps Google improve. See our Privacy Policy.

Share more feedbackReport a problemCloseShow moreExplain thisRelated imagesCopy textAccess this menu with Ctrl+Shift+X(function(){var ctid='eKlzJc';(function(){'use strict';function l(a,b){a.dataset.attnms=b;google.sx(null,()=>{window.dispatchEvent(new CustomEvent("UPaGwc",{detail:{mr:a}}))});encodeURIComponent("\$,/:;?@[]^`{|}").substr(1).replace(/%/g,"%");encodeURIComponent("&\$,/:;?@[]^`{|}").substr(1).replace(/%/g,"%");var m=function(a){a=a.tabIndex;return typeof a==="number"&&a>=0&&a<32768};var n=function(a,b){const c=a.nodeType===9?a.a.ownerDocument||a.document;return c.defaultView&&c.defaultView.getComputedStyle&&(a=c.defaultView.getComputedStyle(a,null))?a[b]||a.getPropertyValue(b)||"":""};const p=["scroll","auto"];function q(a){a.hasAttribute("aria-hidden")||(a.setAttribute("ahbak","true"),a.setAttribute("aria-hidden","true"))}function r(a){if(!a.hasAttribute("data-tibak")){if(a.hasAttribute("tabindex")){var b=a.getAttribute("tabindex");a.setAttribute("tabindex",-1);a.setAttribute("data-tibak",b)}else{({g:b=!0}={g:!1});if(a instanceof HTMLElement||a instanceof SVGElement){var c;if(!(c=!a.tagName==="A"&&a.hasAttribute("href")||a.tagName==="INPUT"||a.tagName==="TEXTAREA"||a.tagName==="SELECT"||a.tagName==="BUTTON"?!a.disabled&&(!a.hasAttribute("tabindex")||m(a)):a.hasAttribute("tabindex")&&m(a))){if(b){b:{for(b=a;b=b.parentElement;if(b instanceof HTMLElement&&b.inert){b=!0;break b}b=!1}b||(b=n(a,"visibility"),b=b==="hidden"||b==="collapse");if(!b)b:{for(b=a;b=b.parentElement;if(n(b,"display")==="none"){b=!0;break b}b=!1}c=b}b=c?!1:!0}else b=!1;if(!b)a:{if(a instanceof HTMLElement)for(b=0;b<p.length;b++)if(c=p[b],a.style.overflowX===c||a.style.overflowY===c){b=!0;break a}b=!1}b&&(a.setAttribute("tabindex",-1),a.setAttribute("data-tibak","none"))}for(b=0;b<a.children.length;b++)r(a.children[b])};function t(a,b=-1){if(b<0)q(a),r(a);else{var c=a.getBoundingClientRect(),d=[];u(a,c.top+b,d,c);for(const e of

```

d)q(e),r(e))function u(a,b,c,d){d!=null||(d=a.getBoundingClientRect());let e=
0;if(d.x===0&&d.y===0&&d.height===0&&d.width===0){const
g=getComputedStyle(a).display;if(g==="none")return;g==="contents"&&(e=!1)}if(e)
{if(d.bottom<b)return;if(d.top>b){c.push(a);return}}for(d=0;d<a.children.length;d+
+)u(a.children[d],b,c)};function v(a,b,c){const
d=a.querySelector(".RDmXvc");a=a.querySelector(".zNsLfb");let e,g=(e=d===null?void
0:d.offsetHeight)!=null?e:68,f,h;if(((f=d===null?void 0:d.getBoundingClientRect().bottom)!
=null?f:0)<((h=a===null?void 0:a.getBoundingClientRect().bottom)!=null?h:0)){let
k;g+=(k=a===null?void 0:a.offsetHeight)!=null?k:60)t(b,c-g)};function x(a,b){let
c=a.matches("[jsname=\"dEwkXc\"]")?a:null;c||
(c=a.querySelector("[jsname=\"dEwkXc\"]"));c||
(c=a.closest("[jsname=\"dEwkXc\"]"));c&&l(c,b)};var y="closure_listenable_" +
(Math.random()*1E6|0);var z=function(a,b,c,d){var e;a&&a[y]?
e=a.fireListeners(b,c,d):e=!0;return e};window.google=window.google||
{};window.google.domchange=function(){z(window,"attn_dom_update",!
1,null)};window.google.fireListeners=z;function A(){var a=B;const
b=a.querySelector(".h7Tj7e");if(!b||b.classList.contains("zc75bb"))x(a,"ec");else{var
c=a.querySelector(".D5ad8b");if(c){var
d=a.querySelectorAll(".Jzkafd"),e=getComputedStyle(b).maxHeight,g=Number(e.replac
e("px",""));b.style.maxHeight=e;d.forEach(f=>{f.style.display=""});v(b,c,g);c.setAttribute("i
d","m-x-content");d.forEach(f=>{const h=f.tagName,k=f.hasAttribute("role"?
f.getAttribute("role").toUpperCase():"";if(h==="BUTTON"||
k==="BUTTON")f.setAttribute("aria-expanded","false"),f.setAttribute("aria-controls","m-x-
content");f.addEventListener("keydown",w=>{w.code!=="Space"&&w.code!=="Enter"||
f.click()});x(a,"tc")});const B=document.getElementById(ctid);B&&A();}).call(this);})();
(function(){var id='z9PoV';document.getElementById(id).setAttribute("lta",Date.now());})
();window._setImagesSrc=function(f,d,a){function g(b){return
document.getElementById(b)||document.querySelector('img[data-iid="'+b+'"]')}function
h(b){b.onerror=function(){b.style.display="none";b.setAttribute("data-
deferred","2");b.setAttribute("data-ims",String(Date.now()));b.src=d}
a&&(a=g(a))&&(d=a.href);if(d){a={};for(var e=0;e<f.length;a={g:void 0},++e){var
c=f[e];a.g=g(c);a.g?(c=
1,google.c&&google.c.setup&&(c=google.c.setup(a.g),c=c===null||
c&1,c=google.c.doiu===1&&!c),c?google.caft(function(b){return function(){h(b.g)}}
(a)):h(a.g)):(google.iir=google.iir||[],google.iir[c]=d)}};typeof
window.google==="undefined"&&(window.google={});(function(){var
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size:28px;height:36px}.xWMIc{vertical-align:top}.M8kD5b{align-items:center;display:flex}.TzAKVc{cursor:pointer;position:relative}.okWquf{width:36px;height:36px;margin:-4px;padding:4px;vertical-align:baseline}.cufAtc{border-radius:50%;border-width:0;background-clip:content-box;background-color:inherit}.cWYJkf{position:absolute;width:34px;height:34px;border-radius:50%;border-width:1px;border-style:solid;border-color:#dadce0}.f5YJfe{border-color:var(--Nsm0ce);background-color:var(--Nsm0ce)}.cWYJkf:hover{background-color:#f8f9fa}.f5YJfe:hover{border-color:#1558d6;background-color:#1558d6}.mW2wVd{position:absolute;top:-1px;left:-1px;height:100%;width:100%;border-radius:inherit;border-width:1px;border-style:solid;border-color:#d2e3fc;background-color:#e8f0fe;opacity:0}.D9010b{border-color:#1558d6;background-color:#1558d6}.aC35af{height:22px;margin:6px;position:absolute;width:22px}.IXjEkd{background-image:url()).g3ih2c{background-image:url()).aXV0Gb{background-image:url()).LmiwJe{background-image:url()).wJgWhc{background-image:url(

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and preventing tampering.

How it works      Encoding: Your message

(e.g., "Hello") is scrambled into code (e.g., "XyZq") using an algorithm and a key.

Encryption: This scrambling process is called encryption. Ciphertext: The coded

message ("XyZq") is the ciphertext. Decoding: The receiver uses their own key to unscramble the ciphertext back into the original message ("Hello"). Decryption: This unscrambling is called decryption.

Why it's important      Confidentiality:

Keeps your data secret from unauthorized viewers (like hackers). Integrity: Ensures the message hasn't been changed or tampered with during transit. Authentication: Verifies the identity of the sender and receiver. Non-repudiation: Prevents someone from denying they sent a message.

Real-world examples      Passwords: When

you log in, your password isn't stored as plain text; it's hashed (a one-way encryption) so even a database breach won't reveal it. HTTPS: The padlock icon in your browser uses

cryptography to secure your connection as you browse. Messaging apps: Apps like WhatsApp use it to make sure only you and your friend can read your chats. What Is

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(function(){
  (this||self).Bqpk9e=function(f,d,n,e,k,p){var
  g=document.getElementById(f);if(g&&(g.offsetWidth!==0||g.offsetHeight!==0)){var
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  a:a,f);l.scrollLeft=e&&p?a:e&&k?-a:d;var b=g.getElementsByTagName("g-left-button")
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  is_gecko=false;var is_edge=false;var init='Bqpk9e';window[init]
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**AI Overview** Yes, cryptography is a good career due to high demand, competitive salaries, and job growth, though it requires strong math, computer science, and problem-solving skills. The cybersecurity sector is expanding rapidly, and cryptographers are vital for protecting digital data across many industries. Career opportunities are projected to grow significantly, and the work is critical to modern society.

**Pros of a career in cryptography** High demand and growth: The U.S. Bureau of Labor Statistics projects that jobs for information security analysts, a related field, will grow by 33% between 2020 and 2030. This indicates a strong and expanding job market for those with cryptography skills. Strong earning potential: Cryptography roles are often lucrative, with high average salaries and potential to earn significantly more with experience. For example, some sources project average salaries around \$150,000 with top earners making over \$250,000. Critical and engaging work: Cryptographers are essential for protecting data in an increasingly connected

world. The field is challenging and constantly evolving, which can be very interesting for those who enjoy problem-solving. Versatile skills: The skills developed in cryptography—such as expertise in math, algorithms, and computer science—are transferable and highly valued in many industries, including technology, government, and the military. Diverse job opportunities: Cryptographers can work on developing new algorithms, implementing existing security systems, or testing and improving current solutions. They may also move into roles like security architect or penetration tester. What you need to succeed Strong foundation: You will need a solid understanding of advanced algebra, algorithms, programming languages like C, C++, and Python, and both symmetric and asymmetric cryptography. Analytical and problem-solving skills: The work requires analytical and problem-solving skills to develop and break codes, and to find weaknesses in security systems. Continuous learning: The field is always changing, so a commitment to continuous learning is essential to stay ahead of emerging threats. Education: A bachelor's or master's degree in a related field is often a requirement, but strong self-taught skills and certifications can also be valuable.

Who is it for? A career in cryptography is a good fit if you are a tech-savvy individual who enjoys complex challenges, has a strong aptitude for mathematics and computer science, and wants to contribute to digital security in a meaningful way.

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(function(){
  (this||self).Bqpk9e=function(f,d,n,e,k,p){var
  g=document.getElementById(f);if(g&&(g.offsetWidth!==0||g.offsetHeight!==0)){var
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  tHT0l";c.className+=" tHT0l"},50))}}).call(this);(function(){var
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is\_gecko=false;var is\_edge=false;var init='Bqpk9e';window[init]

(id,index,offset,is\_rtl,is\_gecko,is\_edge);})();Show moreIs cryptography difficult?An AI Overview is not available for this searchCan't generate an AI overview right now. Try again later.AI Overview

Yes, cryptography is hard, especially at advanced levels, because it involves complex math (number theory, algebra), requires rigorous logic to design systems that resist sophisticated attacks, and is unforgiving—small mistakes can break entire systems, making it difficult to know if something is truly secure. While you can learn to use basic crypto functions without deep math, understanding why they work and creating new systems demands significant expertise and care.

**Why it's hard** It's not a positive task: You can't easily prove a system is secure, only that you haven't found a flaw yet, making it a constant battle against clever attackers. It's brittle: Tiny implementation errors or misunderstandings can lead to major vulnerabilities (like the BEAST attack). Requires deep math: Algorithms rely on hard math problems (like prime factorization), but practical application needs knowledge of number theory, abstract algebra, and more.

**Threat modeling:** Designing systems requires anticipating real-world threats, which is a complex challenge.

**What makes it manageable (for users)** Basic usage is accessible: You can learn to use modern crypto (like TLS/SSL) by calling functions, similar to basic programming, without needing to invent new algorithms.

**Focus on application:** Understanding how to apply existing, well-vetted crypto securely is a separate, achievable skill.

**How to learn it** Start with basics: Learn concepts like Diffie-Hellman, hashing, public/private keys. Practice: Use platforms like CryptoHack or write simple ciphers to understand fundamentals. Use good resources: Books like "Serious Cryptography" offer practical introductions, while online courses can help with theory. How hard is Applied Cryptography if I'm terrible at math? : r/crypto - RedditMay 15, 2015 — Understanding basic cryptography concepts and protocols is not especially math heavy. You can learn everything you need...Reddit · r/crypto

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```
(function(){
  (this||self).Bqpk9e=function(f,d,n,e,k,p){var
  g=document.getElementById(f);if(g&&(g.offsetWidth!==0||g.offsetHeight!==0)){var
  l=g.querySelector("div"),h=l.querySelector("div"),a=0;f=Math.max(l.scrollWidth-
  l.offsetWidth,0);if(d>0&&(h=h.children,a=h[d].offsetLeft-h[0].offsetLeft,e)){for(var
  m=a;0<m<d;++m)a+=h[m].offsetWidth;a=Math.min(f,a)}a+=n;d=Math.min(e?f-
  a:a,f);l.scrollLeft=e&&p?a:e&&k?-a:d;var b=g.getElementsByTagName("g-left-button")
  [0],c=g.getElementsByTagName("g-right-button")[0];b&&c&&(e=
  RegExp("\\bHT0\\b"),k=RegExp("\\bpQXcHc\\
  \\b"),b.className=b.className.replace(e,""),c.className=c.className.replace(e,""),b.
  className=d===0?"pQXcHc
  "+b.className:b.className.replace(k,""),c.className=d===f?"pQXcHc
  "+c.className:c.className.replace(k,""),setTimeout(function(){b.className+="
  tHT0!";c.className+=" tHT0!";},50)}}).call(this);(function(){var
  id='_uZo_aZ3TN4SzqtsPr-f2wQM_451';var index=0;var offset=0;var is_rtl=false;var
```

is\_gecko=false;var is\_edge=false;var init='Bqpk9e';window[init](id,index,offset,is\_rtl,is\_gecko,is\_edge);})();Show more

## What are the two main types of cryptography?

There are two main types of cryptography: symmetric-key (single key for both encryption and decryption, efficient for bulk data) and asymmetric-key (public/private key pairs for secure key exchange and digital signatures), with hash functions ensuring data integrity.

Feb 13, 2023

## Cryptography 101: Key Principles, Major Types, Use Cases & Algorithms

Splunk[https://www.splunk.com/en\\_us/blog/learn/cryptography](https://www.splunk.com/en_us/blog/learn/cryptography)

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Feedback(function(){var id='fld\_uZo\_aZ3TN4SzsPr-f2wQM\_1';document.getElementById(id).setAttribute("lta",Date.now());})();(function(){var eid='fld\_uZo\_aZ3TN4SzsPr-f2wQM\_1';var pd=-1;(function(a){function b(){google.c.maft(d,c)}var e=Date.now(),c=document.getElementById(a);if(c){var d=(a=c.getAttribute("lta"))?Number(a):e;google.c.wpr?google.c.q("prs",function(){typeof pd!="undefined"&&pd>=0?setTimeout(b,pd):b()}:b()):(eid,!1);})();@media (max-width:799.98px){.TQc1id.vVVcqf .SjLxGf{display:none}#rhs .dG2Xlf{line-height:1.58;margin:6px 0 0;border:1px solid #dadce0}#rhs .dG2Xlf .wDYxhc:not(.NFQFxe){padding-left:15px;padding-right:15px}.TQc1id .KFFQ0c{display:none}@media (min-width:800px) and (max-width:939.98px){.YNk70c .ufC5Cb{grid-column:2/span 8}}@media (min-width:940px) and (max-width:1163.98px){.YNk70c .ufC5Cb{grid-column:2/span 10}}@media (max-width:1163.98px){.YNk70c .vVVcqf{display:block;grid-column:span 5/-2;max-width:100%}}(function(){var nsrp=true;var fsrp=true;var irrp=true;var escn=true;(function(){function b(a){return typeof a!="undefined"&&a===!0}if(b(nsrp)){var c=document.getElementById("center\_col");c&&c.classList.add("ZPOWwb")}if(b(fsrp)){var d=document.getElementById("rcnt");d&&d.classList.add("uW3HW")}function f(a,n){var e=document.getElementById("center\_col"),h=document.getElementById("rhs");e&&h&&(e.classList.toggle("ZFGGlf",a<=10),e.classList.toggle("B8S5Ve",a<=8),h.classList.toggle("UE2fsd",n<=5))}if(document.getElementById("rhs")&&b(escn)&&b(nsrp)){var g=window.matchMedia("(max-width: 799.98px)"),k=window.matchMedia("(max-width: 939.98px)"),l=window.matchMedia("(max-width: 1163.98px)"),m=function(){g.matches&&irrp?f(12,0):k.matches?f(8,5):l.matches?f(10,5):f(12,7)};g.addEventListener("change",m);k.addEventListener("change",m);l.addEventListener("change",m);m();}).call(this);})();(function(){var id='rhs\_csi';document.getElementById(id).setAttribute("lta",Date.now());})();(function(){var eid='rhs\_csi';var pd=-1;(function(a){function b(){google.c.maft(d,c)}var e=Date.now(),c=document.getElementById(a);if(c){var d=(a=c.getAttribute("lta"))?Number(a):e;google.c.wpr?google.c.q("prs",function(){typeof pd!="undefined"&&pd>=0?setTimeout(b,pd):b()}:b()):(eid,!1);})();.s6JM6d .eYa01b{width:148px}.s6JM6d .KtfA8c{width:204px}.s6JM6d .APo4S{margin-left:10px;margin-right:10px}.s6JM6d .THlyec{margin-left:-10px;margin-right:-10px;width:auto}.M8Ogle .hhv4Fb{margin-left:-38px;margin-right:-38px}.M8Ogle .JL6v7b{margin-left:38px;margin-right:38px}.M8Ogle .TRty9d{width:316px}@media (min-width:940px) and (max-

width:1163.98px){.M8Ogle .TRty9d{width:260px}}@media (min-width:800px) and (max-width:939.98px){.M8Ogle .TRty9d{width:372px}}@media (min-width:550px) and (max-width:683.98px){.M8Ogle .TRty9d{width:calc(50% - 10px)}}@media (max-width:550px){.M8Ogle .TRty9d{width:100%}}.TQc1id .zLsiYe{margin-left:-21px;padding-left:0}.OSrXXb{overflow:hidden;text-overflow:ellipsis}.cHaqb{overflow:hidden;text-overflow:ellipsis;white-space:nowrap}.q8U8x{font-family:Google Sans,Roboto,Arial,sans-serif;font-weight:400}.BBwThe{font-weight:700}.MBeuO{font-family:Google Sans,Roboto,Arial,sans-serif;font-size:20px;font-weight:400}.MBeuO{line-height:26px}.k1U36b{font-size:12px;font-family:Roboto,Arial,sans-serif;font-weight:500;line-height:16px}.TBC9ub{margin-left:0px;margin-right:0px}.byrV5b{align-items:center;display:flex;flex-direction:row}.eJtrMc{padding-bottom:8px;padding-top:8px}.Bb1JKe{padding-bottom:8px}.aAJbCe{display:-webkit-box;overflow:hidden;text-overflow:ellipsis;white-space:normal!important;-webkit-box-orient:vertical}@media (max-width:360px){.aAJbCe{word-break:break-word!important;-webkit-line-clamp:5!important}}.EXH1Ce{position:relative}.CJHX3e{padding-bottom:12px;padding-top:12px}.XbQ34c{margin-left:auto}.KYaZsb:hover:has(.wL7MCd:hover) .ZxS7Db{text-decoration:none}.ovklQ svg{transform:rotate(45deg)}.KLEmSd{border-bottom:1px solid var(--ONhrGd)}.wgbRNb.T9Wh5:hover g-fab{color:#70757a!important;box-shadow:0 0 0 1px rgba(0,0,0,.04),0 4px 8px 0 rgba(0,0,0,.2)}.wgbRNb.T9Wh5{height:36px;width:36px;opacity:1}.wgbRNb.T9Wh5.pQXcHc,.wgbRNb.T9Wh5.pQXcHc:hover{opacity:0}.bCwll.T9Wh5 g-fab,.VdehBf.T9Wh5 g-fab{cursor:pointer;height:36px;width:36px}.bCwll.T9Wh5{left:-18px}.VdehBf.T9Wh5{right:-18px}@media (max-width:683px){.bCwll.T9Wh5{left:-8px}.VdehBf.T9Wh5{right:-7px}}.VMiiT{font-size:14px;line-height:22px;font-family:Roboto,Arial,sans-serif;color:var(--bbQxAb)}.dMCtt{font-size:12px;line-height:16px;font-family:Roboto,Arial,sans-serif;letter-spacing:.1px;color:var(--bbQxAb)}.aKolSd{font-size:14px;line-height:18px;font-weight:500;font-family:Google Sans,Roboto,Arial,sans-serif;color:var(--YLNNHc)}.aKolSd{font-weight:400}.DfMusf{border-radius:16px}.wYFOld{border-radius:8px}.yG4QQe{margin-top:0px}.b7GjXe{flex:0 auto;display:flex;align-items:center;width:fit-content;padding:2px 8px;overflow:hidden;font-size:12px;line-height:16px;border-radius:9999px;background:var(--gVUKcd);color:var(--EoKObe);letter-spacing:0.1px;pointer-events:none}@media (forced-colors:active){.b7GjXe{background:Canvas;outline:1px solid;outline-offset:-1px}}.b7GjXe span{overflow:hidden;white-space:nowrap;text-overflow:ellipsis}.b7GjXe.Af9bid{padding:0 8px;font-size:11px;letter-spacing:unset}.b7GjXe.AvolPe{background:var(--Lm570b);color:var(--YLNNHc)}.iwY1Mb{height:0;width:0;opacity:0;display:block}.M6HR1c.adDDi{padding-bottom:4px}.UzglY{flex-grow:1;display:flex;flex-direction:column}.UzglY{gap:4px}.OdBhM{padding-top:8px}.g1yMoc{width:100%;height:auto;display:block}.ESvzac{flex-shrink:0;flex-grow:0;overflow:hidden}.PND3bd{border-top-left-radius:16px;border-top-right-radius:16px}.Vgpgjf{border-top-left-radius:8px;border-top-right-radius:8px}.V8fWH{border:0;clip:rect(0 0 0 0);clip-path:polygon(0 0,0 0,0 0);height:1px;margin:-1px;overflow:hidden;padding:0;position:absolute;width:1px;white-

space:nowrap;-webkit-appearance:none;appearance:none;z-index:-1000;user-select:none}.G0maxb.G0maxb .hUXwKc.hUXwKc{position:absolute;bottom:0;right:0}.G0maxb.G0maxb.d5wodd:not([expanded]) .hUXwKc.hUXwKc{position:absolute}.QyJI3d{background-color:var(--xhUGwc);color:#666;box-shadow:0 4px 16px rgba(0,0,0,0.2)}.oQcPt{background-color:var(--xhUGwc)}.QyJI3d{border:1px solid rgba(0,0,0,.2);position:absolute;z-index:9120}.nFdFHf{animation:g-bubble-show .2s forwards}.bE3Kif{animation:g-bubble-hide .2s forwards}@keyframes g-bubble-show{from{opacity:0}to{opacity:1}}@keyframes g-bubble-hide{from{opacity:1}to{opacity:0}}.QyJI3d.QJnoze{border-radius:12px}.QyJI3d.SiOjJb{border-left-width:0;border-right-width:0;width:100%}.QyJI3d.PnQMie{background-color:#1f1f1f;border:1px solid rgba(0,0,0,.5);color:#dadce0}.QyJI3d.LWen5c{background-color:#1a73e8;border:none;color:#fff;z-index:9100}.tYmfxe{transform:translate(2.5px,1.8px) rotateZ(45deg);position:absolute;z-index:9121}[dir=rtl] .tYmfxe{transform:translate(-2.5px,1.8px) rotateZ(45deg)}.IBPZu.tYmfxe{transform:translate(2.5px,-5.7px) rotateZ(45deg)}[dir=rtl] .IBPZu.tYmfxe{transform:translate(-2.5px,-5.7px) rotateZ(45deg)}.oQcPt{border-bottom:none;border-left:1px solid rgba(0,0,0,.2);border-right:none;border-top:1px solid rgba(0,0,0,.2);box-sizing:border-box;height:13.435px;width:13.435px}.IBPZu .oQcPt{border-bottom:1px solid rgba(0,0,0,.2);border-left:none;border-right:1px solid rgba(0,0,0,.2);border-top:none}.PnQMie .oQcPt{background-color:#1f1f1f;border-color:rgba(0,0,0,.5)}.LWen5c .oQcPt{background-color:#1a73e8;border:none}.nnFGuf{display:none}.c5aZPb{cursor:pointer}.Dcltre{pointer-events:none}.TYQ8Af{clip:rect(1px,1px,1px,1px);height:1px;overflow:hidden;position:absolute;white-space:nowrap;width:1px;z-index:-1000;top:3px;right:3px}.UjBGL{display:block;color:#1f1f1f}.CcNe6e{cursor:pointer;display:inline-block}.shnMoc.CcNe6e{display:block}.v4Zpbe.CcNe6e{display:flex;height:100%;width:100%}g-dropdown-menu{display:inline-block;position:relative}.Jb0Zif g-dropdown-menu{vertical-align:middle}.WNN1b{background-color:var(--xhUGwc)}.adGN6[disabled]{pointer-events:none;cursor:default;background-color:var(--YaleMb)}.XQIMve:hover{background:rgba(112,117,122,.20)}g-menu.wCJA7{border-radius:0;padding-bottom:1px;padding-top:1px}.XQIMve{padding:5px}.XQIMve.YVmrnf{padding:0 5px}.XQIMve.zrQX3c{margin-bottom:-10px;margin-left:-10px;margin-top:-10px;padding:15px 8px 15px 22px}.XQIMve.zrQX3c.BrVFlc{margin-left:0;padding:15px 18px 15px 12px}.XQIMve.zrQX3c.wSFoM{margin:-10px}.XQIMve{padding:2px}.ZS5sq{border-radius:50%}.N1yuQd{color:var(--bbQxAb);cursor:pointer;display:block;position:relative}.EHQHR{display:inline-block;font-size:14px;min-width:62px;vertical-align:middle}.hoPMEf{padding:8px;vertical-align:middle}.g7whne{text-overflow:unset;overflow:visible;display:block;position:relative}.n7T2bf{display:block}.jom



N3c,.LD7sbd{color:var(--bbQxAb)}.Lqky8b{white-space:nowrap}.Lqky8b .N1yuQd{font-size:14px;padding-bottom:4px;padding-top:4px}.Lqky8b .Aq6XUb{padding-left:8px;padding-right:8px}.BnL0df .N1yuQd{left:-8px}.BnL0df .EHQHR{width:100%}.BT0iNc{display:flex;flex-direction:column;justify-content:start}.tF2Cxc{position:relative}.tF2Cxc.asEBEc{margin-bottom:30px;}.N54PNb{position:relative}.kb0PBd{display:block;flex:0 0 auto}.A9Y9g{flex:1 1 100%;min-width:0}.b8IM7{display:flex;flex-direction:column-reverse}.V9tjod,.V9tjod .LC20lb,.V9tjod .ESMNde{text-wrap:wrap;transform:scaleY(-1)}.V9tjod .LC20lb{margin:3px 0 0}.zReHs:hover{text-decoration:none}a:hover h3.LC20lb{text-decoration:underline;}.LC20lb{display:inline-block;margin-bottom:3px;}.DKV0Md{padding-top:4px;padding-top:5px;}.DKV0Md,.Z3x0lb{margin-top:0;}.TQc1id .qLRx3b{font-size:14px;line-height:1.58}.HGLrXd{display:inline-block;-webkit-text-size-adjust:none}.q0vns{display:inline-block;padding-bottom:2px;padding-top:1px}.VjDLd .tjvcx,.IVvPP .tjvcx,.kno-kp .tjvcx,.VjDLd .kp-wholepage-osrp .tjvcx,.TQc1id .ss6qqb .tjvcx,.TQc1id .trNcde .tjvcx{display:inline-block;height:19px;overflow-y:hidden}.ojE3Fb{padding:0;max-width:calc(100% - 20px)}.ojE3Fb .q0vns{display:flex;padding:0;overflow:hidden;align-items:center;}.IVvPP .q0vns,.TQc1id .q0vns,.u7yw9 .q0vns,.z4oRlf .q0vns{align-items:center;display:inline-flex}.GvPZzd{font-size:12px;line-height:18px;max-width:max-content;overflow-x:hidden;text-overflow:ellipsis;width:100%}.dTxz9{padding-right:38px}.DDKf1c{margin-right:12px;}.UnOTSe img{border:1px solid var(--mXZkqc);background-color:var(--XKMDxc);border-radius:50%;}.Vwoesf:not(.oRVWZ){display:inline-block}.Vwoesf{vertical-align:middle}.XNo5Ab.XNo5Ab{display:block;}.IWIVCe{border-radius:50%}.VuuXrf{color:#202124;font-size:14px;display:block;line-height:20px;white-space:nowrap;overflow-x:hidden;text-overflow:ellipsis;width:auto;}.CA5RN{overflow:hidden}.ob9lvb{color:#4d5156;}.ylgVCe{color:#4d5156}.B6fmyf{max-height:0;position:relative;top:19px;visibility:hidden}.B6fmyf.Mg1HEd{height:auto}.csDOgf{display:inline;visibility:visible}.csDOgf.BCF2pd.ezY6nb,.csDOgf.L48a4c{height:18px}.csDOgf{margin-left:8px;position:relative}.csDOgf.L48a4c{margin-top:16px}.csDOgf .MJ8UF{padding-left:0;}.p4wth{font-family:Roboto,Arial,sans-serif;font-size:14px;font-weight:400;line-height:22px;color:var(--bbQxAb);}.p4wth b{color:#767676}.VwiC3b{word-break:break-word}.Hdw6tb{display:-webkit-box;-webkit-box-orient:vertical;overflow:hidden}.dM1Yyd{padding-right:6px;margin-top:4px;display:inline-block}.dM1Yyd:visited .qXOWAb{color:#681da8}.KTAFWb{display:inline-block}.uyS0S{background-color:#0b57d0;border-radius:9999px;opacity:0;position:absolute;top:0;left:0;right:0;bottom:0}.jEYSNd{border:1px solid var(--Yi4Nb);border-radius:9999px;padding:0 12px;position:relative;display:inline-flex;justify-self:center;align-items:center;height:30px;}.jEYSNd:hover .uyS0S,.jEYSNd:focus-visible .uyS0S{opacity:8%}.jEYSNd:active .uyS0S{opacity:24%}.jEYSNd .qXOWAb{font-

family:Roboto,Arial,sans-serif;font-size:12px;font-weight:500;line-height:16px;color:var(--JKqx2);}.jEYSNd:hover.qXOWAb,.jEYSNd:focus-visible.qXOWAb,.jEYSNd:active.qXOWAb{color:var(--jINu6c)}.s6JM6d.z4oRlf.Jb0Zif.pEZBSb,.s6JM6d.z4oRlf.CelyHb.XWkUDf,.s6JM6d.z4oRlf.CelyHb.XWkUDf,.s6JM6d.z4oRlf.CelyHb.XWkUDf,.s6JM6d.z4oRlf.CelyHb.XWkUDf,.s6JM6d.z4oRlf.ss6qqb{margin-bottom:44px}.TQc1id.z4oRlf{max-width:100%}@media (min-width:800px){.s6JM6d.z4oRlf{height:0;margin:0;overflow:hidden;padding:0}}@media (max-width:799.98px){.TQc1id.z4oRlf{height:0;margin:0;overflow:hidden;padding:0 !important}}html:not(.zAoYTe).kp-wholepage a{outline:0}.ss6qqb{border-bottom:1px solid var(--gS5jXb);line-height:1.58}#rhs.ss6qqb{border:1px solid #dadce0;border-radius:8px}#rhs.u7yw9{border:0;border-left:1px solid var(--gS5jXb);border-radius:0}.ss6qqb.epKdHc{align-items:center;column-gap:16px;display:flex;flex-direction:row-reverse;justify-content:space-between;padding:0 0 16px;margin-top:16px;margin-left:20px}.s6JM6d.z4oRlf.ss6qqb.epKdHc{position:absolute;margin-top:-24px;right:0}.ss6qqb.PKDVJd{color:var(--lXoxUe);display:inline-block;font-size:12px}.KsRP6{display:flex}.QpPSMb{align-items:center;display:flex;justify-content:space-between}.nwVKo{align-items:center;display:flex}.r2VLS{flex:0 0 22px;height:20px;padding:1px 0 1px 6px;width:22px}.nwVKo.r2VLS{margin-bottom:auto}.TQc1id.KsRP6{padding:0 0 16px 20px}.TQc1id.MDY31c,.z4oRlf.MDY31c{flex-grow:1}.s6JM6d.ss6qqb.KsRP6{margin:0 0 16px 0;padding:0}.ssJ7i{color:var(--YLNNHc);font-family:Google Sans,Roboto,Arial,sans-serif;font-weight:500;word-break:break-word}.XqFnDf.ssJ7i,.M8Ogle.ssJ7i{font-size:28px;line-height:36px;}.XqFnDf.ssJ7ibr,.M8Ogle.ssJ7ibr{content:' ';display:contents}.s6JM6d.ssJ7i{font-size:28px;line-height:36px;}.TQc1id.ssJ7i{font-size:28px;line-height:36px;}.iAlpCb{color:var(--bbQxAb);font-family:Roboto,Arial,sans-serif;font-size:14px;line-height:20px;margin-top:4px;font-family:Roboto,Arial,sans-serif;font-weight:400;line-height:18px}.y1yadf{position:relative;display:inline-block}.Zj92Hf{display:flex}.xDKLO{.ss6qqb.xDKLO{padding-top:0}.xfX4Ac{font-size:14px}.s6JM6d.z4oRlf.pESs7c:not(:last-of-type){border-bottom:1px solid #cccccc}.TQc1id.z4oRlf.Jl5uCe:not(:last-of-type){border-bottom:none}.kXPUVc{font-family:Google Sans,Roboto,Arial,sans-serif;font-weight:400;display:flex;align-items:flex-start;margin:0 0px;}.YpyODE.kXPUVc{margin:0}@media (forced-colors:active){.kXPUVc a.HnYYW{color:LinkText}}#rhs.YpyODE.yWNJXb{margin:20px 16px 0 0}#rhs.u7yw9.yWNJXb{border-bottom:1px solid var(--gS5jXb);margin:24px 0 0 20px;padding-bottom:20px}.s6JM6d.z4oRlf.u7yw9.yWNJXb{padding-bottom:20px}#rhs.u7yw9.yWNJXb.W21iod,.s6JM6d.z4oRlf.u7yw9.yWNJXb.W21iod{padding-bottom:0}#rhs.YpyODE.yWNJXb.qzPQNd,.YpyODE.yWNJXb.qzPQNd{margin-top:0}#rhs.u7yw9.yWNJXb:last-child{border:0;padding-bottom:0}.yWNJXb{margin-bottom:44px}.Jb0Zif.kXPUVc{margin-bottom:16px}.YpyODE.kXPUVc{margin-bottom:16px}#rhs.YpyODE.kXPUVc{margin-bottom:12px}#rhs.u7yw9.kXPUVc{margin-bottom:16px}.Jb0Zif.yWNJXb{margin:44px 0 0}.M8Ogle.yWNJXb{margin:0}.YpyODE.yWNJXb{margin-top:16px;margin-bottom:0}.Jb0Zif.qzPQNd{margin-top:16px}.s6JM6d.z4oRlf.YpyODE.pESs7c:not(:last-

of-type){border-bottom:1px solid  
rgba(0,0,0,.12)}.TQc1id .z4oRlf .YpyODe.Jl5uCe:not(:last-of-type){border-bottom:none}  
g-accordion-expander .kXPUVc{padding-  
right:16px}.ZYbY5b{bottom:0;left:0;position:absolute;right:0;top:0}.TUX5yb  
img{transition:transform 200ms}.TUX5yb:focus img,.TUX5yb:hover  
img{transform:scale(1.15)}.CYJS5e,a.CYJS5e,a.CYJS5e:visited{color:var(--  
YLNNHc)}.pxiwBd .Ww4FFb{box-shadow:none}.e8Ck0d{display:flex;flex-  
direction:column;font-family:Google Sans,Roboto,Arial,sans-serif;height:312px;max-  
width:min(1121px,100vw - 56px);min-width:100%;padding-  
bottom:24px;position:relative;width:100%}.e8Ck0d.oi2l4d{max-width:1121px;min-  
width:1065px}.s6JM6d .e8Ck0d.IDX8Cc{height:280px}.s6JM6d .e8Ck0d.IDX8Cc,.s6JM6  
d .e8Ck0d.MXhHSe,.s6JM6d .e8Ck0d.IAplyc{padding-  
bottom:0}.s6JM6d .z4oRlf .e8Ck0d.IDX8Cc{padding-  
bottom:24px}.q5jdGd,.K91ENd{display:none}.M8Ogle .q5jdGd,.M8Ogle .K91ENd{displa  
y:unset}.W0url,.QejDDf{position:relative}@media (forced-colors:active)  
{.W0url{border:1px solid ButtonBorder}}.W0url.GHMsie{grid-column:span  
2}.W0url.SodP3b{grid-row:span  
2}.W0url.XbtRGb,.W0url:not(.Vefsqb) .wDYxhc{height:100%}.W0url:not([data-nohu])  
{cursor:pointer}.o6dXvc{border-  
radius:0;overflow:visible}.VNzqVe{height:100%;flex:1;width:100%}.e6hL7d{display:grid;g  
rid-column-gap:20px;grid-gap:20px;grid-template-  
rows:repeat(2,minmax(0,1fr));height:100%}.e6hL7d.As9MV{grid-template-  
columns:repeat(4,minmax(0,1fr))}.e6hL7d.zb0Dlf{grid-template-  
columns:repeat(5,minmax(0,1fr))}.e8Ck0d.IAplyc .W0url,.e8Ck0d.MXhHSe .W0url,.e8C  
k0d.IDX8Cc .W0url,.e8Ck0d.KCFg2b .W0url{margin-left:0;margin-right:0}.e8Ck0d.IAplyc  
.W0url,.e8Ck0d.MXhHSe .W0url,.e8Ck0d.IDX8Cc .W0url,.e8Ck0d.KCFg2b .W0url,.e8C  
k0d.IAplyc .Bn2Feb:not(:hover),.e8Ck0d.MXhHSe .Bn2Feb:not(:hover),.e8Ck0d.IDX8Cc  
.Bn2Feb:not(:hover),.e8Ck0d.KCFg2b .Bn2Feb:not(:hover)  
{width:100%}.WV VXpe{display:flex}.QejDDf{grid-column:span 4;grid-row:span  
2}.e6hL7d.As9MV .QejDDf{grid-column:span 2}.e6hL7d.zb0Dlf .QejDDf{grid-  
column:span 3}.s6JM6d .z4oRlf .e6hL7d{grid-auto-  
flow:dense}.s6JM6d .z4oRlf .e8Ck0d.MXhHSe[data-  
ccm="TT"] .QejDDf,.s6JM6d .z4oRlf .e8Ck0d.MXhHSe[data-ccm="TT"] .W0url[data-  
vdb]{grid-column:span 1;grid-row:span 1;min-  
height:100%}.s6JM6d .z4oRlf .e8Ck0d.MXhHSe[data-ccm="TSS"] .QejDDf{grid-  
column:span 1;grid-row:span 2;min-  
height:100%}.s6JM6d .z4oRlf .e8Ck0d.MXhHSe[data-ccm="TSS"] .W0url[data-vdb]  
{grid-column:span 1;grid-row:span 1;min-height:100%}.W0url div[data-eboh] div[data-  
hwc]  
{bottom:10px;opacity:0;position:absolute}.M8Ogle .e8Ck0d.IDX8Cc:not(.cBZvAd):not(.q  
L6S2e)  
{height:308px}.e8Ck0d.MXhHSe,.e8Ck0d.IAplyc,.e8Ck0d.cBZvAd{height:auto}.M8Ogle  
.e8Ck0d.IDX8Cc.eN5DFc .e6hL7d,.M8Ogle .e8Ck0d.IDX8Cc.eN5DFc .QejDDf,.e8Ck0d.  
MXhHSe.eN5DFc .QejDDf,.e8Ck0d.IAplyc.eN5DFc .QejDDf{min-height:302px;max-  
height:336px}.TQc1id .e8Ck0d.MXhHSe .QejDDf,.e8Ck0d.MXhHSe[data-

rfcl2] .QejDDf{min-height:100%;max-height:unset}.e8Ck0d.MXhHSe,.e8Ck0d.IAplyc{padding-bottom:24px !important}.TQc1id .e8Ck0d.MXhHSe .QejDDf,.e8Ck0d.MXhHSe[data-rfcl2] .QejDDf,.TQc1id .e8Ck0d.IAplyc .QejDDf{height:240px}.IAplyc .e6hL7d,.MXhHSe .e6hL7d,.IDX8Cc .e6hL7d,.KCFg2b .e6hL7d{grid-gap:12px}.IDX8Cc .e6hL7d.As9MV{grid-template-columns:repeat(3,minmax(0,1fr))}@media (min-width:800px){.pnbBSb.IDX8Cc .e6hL7d.As9MV{grid-template-columns:428px repeat(2,minmax(0,1fr))}.IDX8Cc .e6hL7d.As9MV .QejDDf{grid-column:span 1}.MXhHSe .e6hL7d{grid-template-columns:repeat(2,minmax(0,1fr));grid-template-rows:initial}.MXhHSe .e6hL7d .QejDDf,.MXhHSe .e6hL7d .W0url.GHMsie:not(.SodP3b),.MXhHSe .e6hL7d.As9MV .W0url.GHMsie,.MXhHSe .e6hL7d .W0url.BmnyM{grid-column:span 2}.MXhHSe .e6hL7d:not(.zb0Dlf) .W0url{grid-column:span 1}.MXhHSe .e6hL7d .W0url:not(.o6dXvc),.IAplyc .e6hL7d .W0url:not(.o6dXvc){min-height:100px}.TQc1id .MXhHSe .e6hL7d .W0url,.TQc1id .IAplyc .e6hL7d .W0url{min-height:unset}.s6JM6d .e8Ck0d[data-ccm] .e6hL7d .W0url{min-height:fit-content}.z4oRlf .IDX8Cc .W0url.EVeTFb,.s6JM6d .z4oRlf .MXhHSe:not([data-ccm="2COL"]) .W0url.EVeTFb{display:none}.IAplyc .e6hL7d .QejDDf{grid-column:span 1}.IAplyc .e6hL7d{grid-template-columns:initial;grid-template-rows:initial}.IAplyc .e6hL7d .W0url,.IAplyc .e6hL7d .W0url.GHMsie:not(.SodP3b){grid-column:span 1;min-width:100%}.IAplyc .VNzqVe{height:unset}.W0url[data-animatingcontainment]{transition-property:height,width;background,border-radius}.W0url{curve:null;transition-property:width;transition-duration:200ms}.W0url.Bn2Feb,.W0url.fidcGf,.W0url.BOht8d,.W0url[data-animatingcontainment]{transition-timing-function:cubic-bezier(0.05,0.7,0.1,1);transition-duration:300ms}.W0url div[data-expc]{opacity:0;pointer-events:none;position:absolute;top:0;visibility:hidden}@keyframes fade-in {0%{opacity:0}100%{opacity:1}}@keyframes fade-out {0%{opacity:1}100%{opacity:0}}.W0url:hoverta,.W0url a:hovertext-decoration:none}.SwNFKd{width:100%}.nNT2Db{overflow:hidden}.QJ1ykf{border-radius:20px;display:grid;grid-gap:2px;grid-template-rows:repeat(2,minmax(0,1fr));overflow:hidden}.mW90w{overflow:hidden;position:relative}.gLkeC{position:absolute}.QJ1ykf{bottom:0;left:0;position:absolute;right:0;top:0}.QJ1ykf.SwuGKe{grid-template-columns:repeat(4,minmax(0,1fr))}.e8Ck0d .QejDDf.i64Mee .QJ1ykf.SwuGKe{grid-template-rows:2fr 1fr;grid-template-columns:1fr 1fr}.mW90w{grid-column:span 2;grid-row:span 1}.IDX8Cc .QJ1ykf.SwuGKe .mW90w.KoyeEb,.e8Ck0d .QejDDf.i64Mee .QJ1ykf.SwuGKe .mW90w:not(.XJu8V){grid-column:span 1}.IDX8Cc .mW90w{grid-row:initial}.MXhHSe .SwNFKd{min-height:200px}.MXhHSe .nNT2Db{padding-bottom:60%}.gLkeC{bottom:14px;right:15px}.R0fvy{display:grid;gap:2px;grid-template-columns:repeat(10,minmax(0,1fr));grid-template-rows:repeat(2,minmax(0,1fr))}.R0fvy .mW90w{grid-row:span 1;height:100%}.R0fvy .mW90w.a0sZqd{grid-column:span 5}.y01PGd{pointer-events:none}.nNEgVe:focus-within:focus-visible .y01PGd{border:1px solid

Highlight;outline:Highlight auto 1px;outline:-webkit-focus-ring-color auto 1px;outline-  
 offset:-2px}.uhHOWf{position:relative}.uhHOWf::after{background-  
 color:rgba(0,0,0,0.03);bottom:0;content:"";display:block;left:0;pointer-  
 events:none;position:absolute;right:0;top:0}.uhHOWf  
 img{display:block}.ez24Df{overflow:hidden}.ez24Df:not([style\*='padding-top:'])  
 {height:100%}.ez24Df img{height:100%;width:100%;object-  
 fit:cover}.ez24Df[style\*='padding-top:']  
 img{position:absolute;top:0}.sgySOc{display:block}.u96bed{align-  
 items:center;background:var(--gVUKcd);border-radius:100px;display:flex;justify-  
 content:center}.zwVERd{color:var(--EoKObe)}.sgySOc g-bubble{display:inline-  
 block}.c7hQac{padding:7px}.iJddsb{display:inline-block;fill:currentColor}.iJddsb  
 img,.iJddsb svg{display:block;height:100%;width:100%}.v0UHue{min-  
 height:100%}.v0UHue{position:relative}.ISATce{display:flex;font-size:14px;line-  
 height:18px}.ISATce:not(.OIITb).y171A:hover .iJ25xd.AcUIBb{text-  
 decoration:underline}.ISATce{bottom:11px;left:14px;padding:6px;right:14px}.ISATce:not(.  
 OIITb){padding:0}.QSDnl{color:var(--IXoxUe);font-  
 size:14px}.VelOt:not(.lg2F2d).iJ25xd{color:var(--  
 JKqx2)}.y171A,.y171A:visited{color:inherit}div[data-uncollapsible] div[data-lh]{-webkit-  
 line-clamp:unset !important}.v0UHue[data-collapsed]:hover,.v0UHue[data-  
 expandable]:hover{cursor:pointer}.rgJgXc{padding:20px 0  
 0}.GFuwlf,.BAqyXc,.ekPvWc{font-size:14px;line-  
 height:22px}.d5wodd{position:relative}.wtBS9{width:100%;display:-webkit-box;-webkit-  
 box-  
 orient:vertical;overflow:hidden}.d5wodd[expanded] .wtBS9{display:initial;overflow:visible}  
 .d5wodd:not([expanded]) .ctHNac{display:none}.d5wodd:not([expanded]) .hUXwKc{posit  
 ion:absolute;bottom:0;right:0;background:linear-gradient(to left,var(--xhUGwc) 0%,var(--  
 xhUGwc) calc(100% - 8px),transparent)}.d5wodd[expanded] .Yh5dPc{padding-  
 right:8px}.l7Wnjd{position:relative;top:-2px}.d5wodd:not([expanded]) .AGDyff{backgroun  
 d:linear-gradient(to left,var(--xhUGwc) 0%,var(--xhUGwc) calc(100% -  
 55px),transparent)}.oEHCHd{padding:0 8px 0 55px;margin-right:8px;border-right:1px  
 solid #d2d2d2;vertical-align:bottom}.tAmS0c{display:inline-block;max-  
 width:60%;overflow:hidden;text-overflow:ellipsis;vertical-align:bottom}@media (forced-  
 colors:active)  
 { .d5wodd:not([expanded]) .AGDyff.AGDyff,.d5wodd:not([expanded]) .hUXwKc.hUXwKc{  
 background:var(--xhUGwc)}.oEHCHd.oEHCHd{padding-  
 left:8px}.AGDyff .l7Wnjd{top:-1px}.lQhcl{align-items:center;display:inline-  
 flex}.XklSS{font-size:14px;color:var(--JKqx2) !important}.VmgTu .lQhcl{align-  
 items:center;bottom:0;color:var(--IXoxUe);display:inline-flex;font-  
 size:14px;position:relative}.tGYVp{display:inline-flex;flex-wrap:nowrap;text-  
 wrap:nowrap;align-items:center;padding:2px 4px 2px 8px;background:#f1f3f4;color:var(--  
 YLNNHc);border-radius:100px;cursor:pointer;font-family:Google Sans,Roboto,Arial,sans-  
 serif;font-size:12px;font-weight:500;line-  
 height:16px;overflow:hidden}.tGYVp:hover::after,.tGYVp:active::after{content:"";position:a  
 bsolute;width:100%;height:100%;top:0;left:0}.tGYVp:active::after{background:var(--  
 YLNNHc);opacity:0.24}.tGYVp:hover::after{background:var(--YLNNHc);opacity:0.08}

@media (forced-colors:active){.tGYVp.tGYVp{border:1px solid ButtonBorder}}.tGYVp::before{content:"";min-height:32px;width:100%;position:absolute;top:0;left:0}.WsWLJf{color:var(--amnPwe)}.tGYVp:hover .WsWLJf,.tGYVp:active .WsWLJf{color:var(--YLNNHc)}.q90elc .c3agsb,.tGYVp:not(.q90elc) .t7MU3b{display:none}.sz3HNe .YC72Wc{max-width:100%}.BpSt9{display:flex;flex-grow:1;overflow:hidden}.s6JM6d .z4oRlf .mgAbYb{font-size:22px}.TQc1id .z4oRlf .mgAbYb{font-size:18px}.adDDi.PJl6ge{padding-bottom:0}.lPpbe{margin-top:12px}.TQc1id .lPpbe{margin-top:16px}.MBdbL{display:flex}.vNFaUb{width:92px}.TQc1id .vNFaUb{width:100%;}.uJyGcf{margin-right:20px}.TQc1id .MBdbL{column-gap:12px;overflow:hidden}.TQc1id .uJyGcf{margin-right:0;max-width:84px;min-width:78px}.TQc1id .vNFaUb .g1yMoc .BYbUcd{height:auto !important;max-width:100%}.TQc1id .vNFaUb .g1yMoc .BYbUcd::before{content:"";float:left;padding-top:100%}.s6JM6d .z4oRlf .vNFaUb .BYbUcd{min-width:92px;min-height:92px}.p7bv{display:flex;flex-direction:column;flex:auto}.EXH1Ce{position:relative}.lF221e{display:-webkit-flex;flex-direction:column;flex:auto}.T3Fozb{text-decoration:none}.T3Fozb:hover{text-decoration:none}.c30Ztd:hover~.T3Fozb .CvgGZ{text-decoration:underline}.c30Ztd:hover~.CvgGZ{text-decoration:underline}.qrtwm:focus-visible{outline:2px solid var(--Pa8Wlb);border-radius:8px;box-sizing:border-box;outline-offset:-2px}.c30Ztd{position:absolute;z-index:1;top:0;left:0;height:100%;width:100%}.BYbUcd{overflow:hidden;}.BYbUcd img{height:100%;width:100%}.Yt787{word-break:break-word;}.trNcde{position:relative}.trNcde .wDYxhc{clear:none}.trNcde .wDYxhc .tF2Cxc{clear:both;overflow:hidden}.APjcld,.WltAjf{color:var(--lXoxUe)}.WltAjf::before{content:"";display:block;height:4px}.XBIWle .JlqpRe{margin:12px 0;}.ABs8Y{-webkit-line-clamp:1;word-break:break-all;color:#1f1f1f}.APjcld.APjcld{-webkit-line-clamp:1;color:var(--lXoxUe);font-family:Google Sans,Roboto,Arial,sans-serif}.APjcld::before{content:"";display:block;height:2px}.APjcld,.WltAjf{-webkit-line-clamp:1}.CC4Ctb .JCzEY{-webkit-line-clamp:1;word-break:break-all}.VnhmVe::first-letter{text-transform:capitalize}.VnhmVe{word-break:break-all;-webkit-line-clamp:1;}.APjcld.JV6XX,.JV6XX{display:flex}.TQc1id .U48fD{margin-top:16px}.U48fD.TOQyFc{margin-top:0}.U48fD.p8FEIf{padding-bottom:0}.jRKCud.p8FEIf::before{bottom:-4px}.TQc1id .ZFiwCf{max-width:unset}.TQc1id .Bi9oQd{display:none}.eFM0qc{display:inline-flex;padding-bottom:2px;padding-top:1px;padding-left:2px;visibility:visible;align-items:center}.eFM0qc.BCF2pd{align-items:center;display:flex;padding:0;margin-left:4px}.ZGwO7{margin:0 16px;margin:0 2px 3px 2px}.ZGwO7.s4H5Cf{margin-bottom:0}g-section-with-header{display:block;margin-bottom:0}.Jb0Zif g-section-with-header{margin-bottom:30px}.ss6qqb g-section-with-header{margin-bottom:16px}.e2BEnf{font-size:20px;line-height:1.3}.sOq4Gc{white-space:normal}.jUUgH{display:flex;justify-content:flex-start;align-items:center}.m5t0v{margin:0 0 16px 0}.XNfAUb{display:block;position:relative;}.RyIFgf{display:block;overflow-x:auto;overflow-

y:clip;position:relative;transform:translate3d(0,0,0);transform:translate3d(0,0,0);}.RyIFgf::  
-webkit-  
scrollbar{display:none}.HG5ZQb{display:flex}.Bl6f6d{display:flex;}.dRzkFf{margin-  
left:20px;padding:0;width:204px}.dRzkFf.dz3f7e{margin-  
left:0}.tPUpmf{height:100%;display:flex;flex-direction:column;overflow:hidden}@media  
(forced-colors:active){.ar9V1{border:1px solid transparent}}.YXe3R{background-  
color:var(--XKMDxc)}.JJJtgd{display:flex;flex-direction:column;flex-  
grow:1;position:relative}.Dzvr6{display:flex;flex-direction:column;flex-  
grow:1;position:relative}.b7hBnb{display:flex;flex-direction:column;flex-  
grow:1}.fZPPvd{display:flex;flex-direction:column;flex-grow:1;gap:8px;padding-  
bottom:12px;padding-left:12px;padding-right:12px}.WlydOe{outline-  
width:1px;display:flex;flex-direction:column;flex-grow:1;}.WlydOe:hover{text-  
decoration:none}.WlydOe:focus-visible{outline-style:solid}.jyAf5b{outline-offset:-1px}  
a:hover .WZaQJf{text-decoration:underline}.eAaXgc{display:-webkit-box;-webkit-box-  
orient:vertical;overflow:hidden;white-space:normal}.pontCc{flex-  
grow:1}.WZaQJf.WZaQJf{color:var(--JKqx2))  
a:visited .WZaQJf,a:visited.WZaQJf,a:visited.WZaQJf.WZaQJf{color:#681da8}.eAaXgc{  
display:-webkit-box;-webkit-box-orient:vertical;overflow:hidden;white-space:normal;word-  
break:break-word}.Wgws3{flex-grow:1}.qgdis{color:var(--bbQxAb);font-  
weight:bold;}.wXEDqf{border:0;clip:rect(0 0 0  
0);height:1px;margin:-1px;overflow:hidden;padding:0;position:absolute;width:1px}.rbYSK  
b{color:var(--IXoxUe);line-height:16px;position:absolute;width:calc(100% -  
32px);margin:0 16px;font-size:14px;}.LfVVr.rbYSKb{max-width:100%;width:fit-  
content;margin:0}.esJEyb.LfVVr.rbYSKb{position:unset}.fwjiQe{font-  
size:12px}.XskEbd{max-width:calc(100% -  
36px)}.UzAMof{display:flex;position:relative;flex-wrap:wrap;align-  
items:center}.Qg3N7d{flex:1;min-width:0;margin-left:8px;width:100%}.sTl1Td{font-  
size:14px;line-height:20px;align-items:center;letter-spacing:0.1px;color:var(--  
YLNNHc);order:0;align-self:stretch;flex-grow:0;white-  
space:nowrap}.GoMAhb.GoMAhb{font-size:12px;line-  
height:16px}.q0qyN.q0qyN{margin-left:6px}.g0GqPe.g0GqPe{font-size:11px;line-  
height:13px;letter-spacing:0}.aJmABe{color:var(--bbQxAb)}.jSP0zb{margin-  
left:12px}.K3v1ae{align-self:center}.oRVWZ{border-radius:50%;display:flex;align-  
items:center;justify-content:center;width:fit-content}.CZ61cb.GB3ilc,.GB3ilc{background-  
color:#f1f3f4}.appd0{font-size:12px;line-height:16px;letter-spacing:0.1px;color:var(--  
IXoxUe);flex:none;order:2;flex-grow:1;white-space:nowrap}.nDgy9d{display:-webkit-  
box;overflow:hidden;-webkit-box-orient:vertical;white-space:normal}.g1y0jd{align-  
items:center;color:var(--IXoxUe);cursor:pointer;display:flex;justify-  
content:center;position:absolute;right:0;vertical-align:middle;z-  
index:1}.cVxV7d.g1y0jd{bottom:0;}.iwppdc{display:flex;flex-direction:column;flex-  
grow:1;position:relative}.XmLgGb{display:flex;flex-direction:column;flex-  
grow:1}.koZ5uc{display:flex;flex-direction:column;flex-grow:1;gap:8px;padding-  
bottom:12px;padding-left:12px;padding-right:12px;padding-  
top:12px}.reMwfc{display:flex;flex-direction:column;flex-  
grow:1;position:relative}.x2PRle{display:flex;flex-direction:column;flex-

grow:1}.tqnYnf{display:flex;flex-direction:column;flex-grow:1;gap:8px;padding:12px}.T16mof{overflow:hidden;position:relative}.zT2yKd{-webkit-text-size-adjust:none;margin-bottom:2px;vertical-align:middle;position:relative;display:inline-block;vertical-align:middle}.uiglJd{overflow:hidden;border-radius:50%;position:relative}.NffHwb{position:absolute;bottom:-4px;right:-4px;border-radius:50%;line-height:0;padding:2px;background-color:var(--xhUGwc)}.YXe3R.NffHwb{background-color:var(--XKMDxc)}.hor8Kd{position:relative;border-radius:50%;overflow:hidden}.tBMkq{height:20px;width:20px;line-height:20px}.fZPPvd{display:flex;flex-direction:column;flex-grow:1;gap:8px;padding:12px}.AZJdrc.Svi2ld{position:relative}.AZJdrc.zGXzeb,.AZJdrc.zGXzeb.Svi2ld{display:table}.kCyj6d{overflow:hidden;isolation:isolate}.Llna9b,.AZJdrc.kSFuOd,.AZJdrc.aQElvf.rlRoqf{position:absolute;top:0;left:0;bottom:0;right:0}.Llna9b{overflow:hidden;border-radius:inherit}.rkqHyd{margin:6px 8px}.rkqHyd{margin:8px}.c8rnLc{position:absolute;bottom:0;left:0}.zCaigb{border-radius:10px;padding-block:2px;padding-inline:8px}.zCaigb{display:flex}.flgn0c{background-color:var(--gVUKcd);color:var(--EoKObe);fill:var(--EoKObe)}.WVV5ke{display:contents}.hXY9cf{cursor:pointer;outline-offset:1px;z-index:1}.Vtx8Xc{position:absolute;top:0;right:0}.jrwKTb{background-color:var(--gVUKcd);border-radius:50%;color:var(--EoKObe);width:14px;height:14px;line-height:14px;padding:3px}.jrwKTb span{display:block}.pQXcHc{cursor:default;opacity:0;visibility:hidden}.EQOGhe{user-select:none}.BzHTJf.p8Jhnd{margin-top:0 !important;margin-bottom:0 !important}.wOJCge{align-items:center;display:flex;text-align:left}.nmhWwf{display:-webkit-box;-webkit-line-clamp:1;-webkit-box-orient:vertical;width:100%}g-image-section{display:block}g-card-section{display:block}.MmMlvd{-webkit-tap-highlight-color:transparent;cursor:pointer;display:block;line-height:18px;text-overflow:ellipsis;white-space:nowrap;padding:16px;padding-top:0;margin-top:24px;position:relative}.MmMlvd.TOQyFc{margin-top:0}.MmMlvd.p8FEIf{padding-bottom:0}.PBBEhf{display:unset}.H9lube{background-color:var(--XKMDxc);border:1px solid var(--mXZkqc);border-radius:50%;display:inline-flex;justify-content:center;align-items:center;height:26px;width:26px;margin-right:12px;flex-shrink:0;vertical-align:middle;}.eqA2re.NjwKYd{margin-right:0}.vtSz8d{overflow:visible;box-shadow:none;border:none;margin-top:0;margin-bottom:46px}div.ULSxyf:first-of-type.vtSz8d{margin-top:11px}.UjLRDc{padding-bottom:12px;top:-2px;height:26px}.Dk6Uvb{padding-bottom:8px}.Ea5p3b{position:relative;padding-bottom:0}.PYmpec{background:transparent;border-radius:0;border:unset;pointer-events:none;position:absolute;transform-origin:top;width:calc(100% - 2px);height:100%;z-index:1}.sHEJob{border-top:1px solid var(--ONhrGd);position:relative}.bQwQK{position:relative;top:0;z-index:2;height:30px}.TiWptf{padding-top:6px}.br9Dhb{margin-bottom:-16px}@media (max-width:440px){.TiWptf{margin:10px 0}}.X4T0U{flex-direction:column;display:flex;position:relative;}.ieF8rd{padding-



bottom:12px;position:relative}.ieF8rd a:hover{color:var(--JKqx2)}#rcnt .KYaZsb  
a:hover{text-decoration:none}.KYaZsb{flex:1;display:flex;flex-direction:row-  
reverse;height:fit-content;padding:12px 0;transition:height  
0.3s;}.Q6qD5e{position:absolute;flex-direction:column;flex-  
grow:1;display:flex;height:100%;pointer-  
events:none}.ANO7Pc{display:flex;position:relative;pointer-  
events:none}.zR3ind{position:relative;left:14px;bottom:1px;pointer-  
events:all}.BKIXrc{pointer-  
events:none;height:40px}.ObbMBf,.ObbMBf .rIRoqf{display:inherit;flex:inherit;flex-  
direction:inherit;flex-grow:inherit;text-decoration:inherit;min-width:0}.V5XKdd{flex-  
direction:column;flex-grow:1;justify-content:space-between;box-sizing:border-  
box;display:flex;padding-  
left:20px;height:100%;overflow:hidden}.ZxS7Db{display:flex;align-  
items:start}.V5XKdd:hover .ZxS7Db{text-decoration:underline}.QOGdqf{-webkit-box-  
orient:vertical;-webkit-line-clamp:2;display:-webkit-box;overflow:hidden;white-  
space:unset}.ZtihLe{margin-top:0}.Foqdsf{display:flex;flex-grow:1;align-self:flex-  
end}.Sg4azc{display:block;max-width:100%;overflow:hidden;text-overflow:ellipsis;white-  
space:nowrap}.sPQk9b{pointer-events:none;opacity:0}.t7VAxe{border-  
radius:8px}.Ylm8Fc{left:50%;line-  
height:0;position:absolute;top:50%;transform:translate(-50%,-50%)}.Ylm8Fc.YmeD8e{m  
argin-top:-6px}.MfcGr{fill:var(--gVUKcd)}.Nci3Ge{fill:var(--  
EoKObe)}.wNifxf{position:relative;font-family:Roboto,Arial,sans-serif}.LrlhO{color:var(--  
bbQxAb);font-size:14px;line-height:20px}.LrlhO .p4wth{line-  
height:20px}.qCr3Hd{display:-webkit-box;overflow:hidden;-webkit-box-orient:vertical;-  
webkit-line-clamp:2;}.vwPXuf{word-break:normal}.eMLgL{font-size:12px;color:var(--  
IXoxUe);top:0;height:16px;position:relative;margin-right:0;margin-  
top:-8px}.RTaUke{display:none;opacity:0}.olk2Cb{margin:0}.y6Uyqe{padding:6px 0 0  
0;width:100%;}.Elaa9b{display:flex;column-gap:16px;flex-  
wrap:wrap}.AJLUJb{display:flex;flex:1;flex-direction:column;min-  
width:233px}.b2Rnsc{display:flex;height:52px;margin:4px 0 4px 0}.vlifob{align-  
items:center;background:#f7f8f9;border-radius:8px;justify-  
content:center;}.vlifob:hover{background-color:#e0e2e3}.qR29te{display:flex;flex-  
direction:column;flex-grow:1;min-width:0}.B2VR9{display:flex;align-  
items:center}.ggLgoc{display:block}.wyccme{min-width:0;display:flex;flex-  
direction:column;justify-content:center;flex-grow:1;overflow:hidden}.ngTNI{text-  
decoration:none}.ngTNI:hover{text-decoration:none}.ngTNI:focus-visible{outline-  
color:var(--Pa8Wlb);outline-offset:2px;outline-width:2px}.oatEtb{align-  
items:center;display:flex;gap:12px;justify-content:space-between;margin-  
left:16px;padding-right:9px}.mtv5bd{display:flex;height:100%;flex-direction:column;max-  
width:100%}.dg6jd{color:#1f1f1f;-webkit-line-clamp:2;overflow-wrap:break-word;font-  
family:Google Sans,Roboto,Arial,sans-serif;font-size:16px;}.dg6jd span{font-  
weight:700;}.DxHbyd{background-color:transparent;align-items:center;border-  
radius:50%;display:flex;height:20px;justify-content:center;margin-right:8px;padding-  
left:9px;padding-right:7px;width:20px}.yiwlZe{color:#747878;display:block}.AaVjTc  
a:link{display:block;color:#4285f4;font-weight:normal}.AaVjTc td{padding:0;text-

align:center}.YyVfkd{color:var(--YLNNHc);font-weight:normal;overflow:hidden}.AaVjTc{margin:30px auto 30px}.UUoiQc,.LLNLxf{max-width:calc(100vw - 32px - 335px + 55px);min-width:84px;overflow:hidden}@media (max-width:484px){.mYW5bd .NKTSme:nth-child(11),.RcEbob .NKTSme:nth-child(2){display:none}}@media (max-width:464px){.mYW5bd .NKTSme:nth-child(10),.RcEbob .NKTSme:nth-child(3){display:none}}@media (max-width:359px){.mYW5bd .NKTSme:nth-child(9),.RcEbob .NKTSme:nth-child(4){display:none}}@media (max-width:339px){.mYW5bd .NKTSme:nth-child(8),.RcEbob .NKTSme:nth-child(5){display:none}}.SJajHc{background:url(/images/nav\_logo321\_hr.webp) no-repeat;background-size:167px;overflow:hidden;background-position:0 0;height:40px;display:block}.NVbCr{cursor:pointer}.oeN89d{clear:both}.LLNLxf .oeN89d{float:right}.oeN89d{text-wrap:nowrap}CryptographyWikipedia<https://en.wikipedia.org/wiki/Cryptography><https://en.wikipedia.org/wiki/Cryptography> is about constructing and analyzing protocols that prevent third parties or the public from reading private messages.History of cryptographyOutline of cryptographyPublic-key cryptographyCodeThings to knowChoose what you're giving feedback onOr give general feedbackBasic Principles. What are the basic principles of cryptography? FeedbackBasic principles of cryptography At its core, cryptography relies on three basic principles: confidentiality, integrity, and authenticity. Let's look at each of these principles in more detail: Confidentiality: Confidentiality ensures that only authorized individuals can access and read encrypted data.Mar 13, 2024What is cryptography? - Pauboxpaubox.com<https://www.paubox.com/blog/what-is-cryptography>What are the basic principles of cryptography?Choose what you're giving feedback onOr give general feedbackKey Concepts. What are the key concepts in cryptography?About this resultFeedbackAn AI Overview is not available for this searchCan't generate an AI overview right now. Try again later.AI Overview Key cryptographic concepts revolve around securing information through Confidentiality, Integrity, Authentication, and Non-repudiation, achieved by using algorithms (like Caesar cipher, AES) and keys to transform readable plaintext into unreadable ciphertext (encryption) and back (decryption), using either one shared secret key (Symmetric) or a pair of public/private keys (Asymmetric). Core Goals (CIA+N) Confidentiality: Keeping data secret from unauthorized eyes (e.g., encryption). Integrity: Ensuring data hasn't been tampered with during transit or storage (e.g., hashing). Authentication: Verifying the identity of users or systems. Non-repudiation: Preventing senders from denying they sent a message. Key Components Plaintext: The original, readable message or data. Ciphertext: The scrambled, unreadable form of data. Algorithm/Cipher: A mathematical formula or set of rules to encrypt/decrypt data (e.g., AES, RSA). Key: A secret string of characters (bits) used by the algorithm to scramble/unscramble data; the security relies on keeping the key secret. Types of Key Systems Symmetric: Uses the same secret key for both encryption and decryption (like a shared house key). Asymmetric (Public-Key): Uses a pair of keys: a public key for encryption and a private key (kept secret) for decryption, enabling secure exchange without pre-sharing a secret. Processes Encryption: Plaintext + Key → Ciphertext. Decryption: Ciphertext + Key → Plaintext. Cryptography

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means keeping information in secret or hidden. There are a number of features associated with cryptography.

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In cryptography, a key is a string of characters used within an encryption algorithm for altering data so that it appears random.

**Cloudflare** Cryptography 101: Public Key, Private Key, and How They Work ... Jun 30, 2025 — Cryptography 101: Public Key, Private Key, and How They Work Together. ... Cryptography is a crucial aspect of modern ...

**Kiteworks** Introduction to Cryptography: Simple Guide for Beginners Nov 27, 2025 — Understanding Ciphers: The Basis of All Cryptography ... Cryptography, at its most fundamental level, requires two steps...

**TheBestVPN.com** What Is Cryptography? | IBM Core tenets of modern cryptography \* Confidentiality: Encrypted information can only be accessed by the person for whom it is intended...

**IBM** Cryptographic Keys 101: What They Are & How They Secure Data Jun 14, 2023 — A cryptographic key is a string of characters (often random or mathematically generated) that's paired with a cryptogram...

**The SSL Store** Understanding Secret Keys: A Simple Explanation Jul 22, 2024 — you've probably heard people refer to keys or secret keys when discussing security. but what are they really, and why...

**YouTube · Practical Networking** Cryptography and Network Security: Principles and Practice - AlmaBetter Sep 11, 2023 — The four principles of cryptography are confidentiality, integrity, authentication, and non-repudiation.

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In asymmetric (also called "public-key") encryption, one key is used for encryption and another for decryption. More specifically ...

**Research and Reviews** Cryptography means - Caesar ciphers, PGP, S/MIME and more!

Asymmetric encryption with one key pair: It's a match! As already mentioned, DES and its successor AES are based on symmetric encryption...

**Hornetsecurity(PDF)** Public Key Cryptography Apr 15, 2020 — Abstract and Figures

**Journal of Physics: Conference Series** 1477 (2020) 052062 Figure 2

Asymmetric algorithm uses differential privacy...

```

ResearchGate(function(){
  (this||self).Bqpk9e=function(f,d,n,e,k,p){var
  g=document.getElementById(f);if(g&&(g.offsetWidth!==0||g.offsetHeight!==0)){var
  l=g.querySelector("div"),h=l.querySelector("div"),a=0;f=Math.max(l.scrollWidth-
  l.offsetWidth,0);if(d>0&&(h=h.children,a=h[d].offsetLeft-h[0].offsetLeft,e)){for(var
  m=a;0<m<d;++m)a+=h[m].offsetWidth;a=Math.min(f,a)}a+=n;d=Math.min(e?f-
  a:a,f);l.scrollLeft=e&&p?a:e&&k?-a:d;var b=g.getElementsByTagName("g-left-button")
  [0],c=g.getElementsByTagName("g-right-button")[0];b&&c&&(e=
  RegExp("\\bHT0l\\b"),k=RegExp("\\bpQXcHc\\
  \\b"),b.className=b.className.replace(e,""),c.className=c.className.replace(e,""),b.
  className=d===0?"pQXcHc
  "+b.className:b.className.replace(k,""),c.className=d===f?"pQXcHc
  "+c.className:c.className.replace(k,""),setTimeout(function(){b.className+="
  tHT0l";c.className+=" tHT0l"},50))}}).call(this);(function(){var
  id='_uZo_aZ3TN4SzqtsPr-f2wQM_675';var index=0;var offset=0;var is_rtl=false;var
  is_gecko=false;var is_edge=false;var init='Bqpk9e';window[init]
  (id,index,offset,is_rtl,is_gecko,is_edge);})();Show more
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  cryptography?
  Choose what you're giving feedback on
  Or give general
  
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general feedbackChallenges. What are the challenges in cryptography?About this

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Challenges in cryptography

include the looming threat of quantum computers (requiring post-quantum crypto), complex key management, balancing security with performance/efficiency (especially for IoT), preventing implementation flaws & side-channel attacks, and human factors like poor usability, misaligned incentives, and social engineering. Practical adoption also struggles with standardization, integrating theory into real-world products, and securing big data and blockchain systems.

Technical & Algorithmic Challenges

Quantum Computing: The development of quantum computers threatens current public-key cryptography, necessitating new post-quantum algorithms. Key Management:

Securely generating, distributing, storing, and rotating keys remains difficult, with high

risks if keys are lost or stolen. Performance vs. Security: Finding algorithms that are

both strong and efficient, especially for resource-constrained devices (IoT), is a major

hurdle. Implementation Flaws: Errors in coding, weak algorithms, and poor

configuration can create vulnerabilities, notes this article from Meegle. Side-Channel

Attacks: Attackers can exploit physical characteristics like power consumption or timing to extract secret keys.

Adoption & Human Factors

Usability:

Cryptography is complex; making it user-friendly for non-experts is difficult, leading to

insecure practices, says this paper from the University of Michigan. Misaligned

Incentives: Researchers, developers, and businesses often have conflicting goals,

hindering the adoption of best practices. Human Error & Social Engineering:

Cryptography can't stop phishing, insider threats, or mistakes by users. Standardization:

Ensuring global adoption and consistent implementation of standards is challenging.

Emerging Areas & Other Issues IoT Security: Securing billions of low-power, low-

resource devices requires lightweight cryptography. Big Data & Blockchain: Securing

massive datasets and scaling blockchain systems with cryptographic methods presents

unique problems. AI & Cryptanalysis: The role of AI in both creating and breaking

cryptography is evolving. Cryptographic Challenges - MeegleWhat are the challenges in

implementing cryptography? Challenges include weak algorithms, poor key

management, side-channel attack...MeegleChallenges in Cryptography - IEEE

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minimal energy supply, limited memory, and sometimes restricted communication

capacity require careful design ch...Veridify SecurityThe Challenges of Bringing

Cryptography from Research ...We identified several challenges including

misunderstandings and miscommunication among stakeholders, unclear delineation of roles.

**USENIX 5 Most Significant Challenges Facing Quantum Cryptography**

**Challenge #1: Maintaining A Quantum Communication Network.** **Challenge #2: Transferring Quantum States.** **Challenge #3: A Means For Secure Communication.**

**HEQA Security: The Challenges of Bringing Cryptography from Research Papers to Products.**

Our interviews revealed a myriad of challenges that can occur when bringing cryptography from research papers to products. We report on these challenges.

**Research Challenges in Cryptography Today - EECS 276**

Sep 23, 2025 — Research Challenges in Cryptography Today \* Need for Post-Quantum Cryptography. \* Balancing Efficiency and Security. EECS 276

**Practical challenges in quantum key distribution | npj Quantum Information**

Nov 8, 2016 — Various side-channel attacks discovered in classical cryptography, such as the timing attack, the power-monitoring attack, and the fault injection attack.

**Nature: What are the main challenges in implementing cryptographic algorithms? ... Answer: Challenges include ensuring proper key management, ensuring the security of the algorithm, and ensuring the security of the implementation.**

**Lemon.io: Encryption Algorithm Academic Studies Implementation Flaws: Errors in coding or hardware design can introduce vulnerabilities, regardless of the algorithm's theoretical security.**

**Meegle: Security Challenges in Quantum Communication**

Apr 17, 2025 — Side-channel attacks, where attackers exploit physical characteristics of the system rather than its (quantum communication) security.

**International Journal of Scientific Research and Engineering Trends: What are the limitations of cryptography in securing data? Answer: Cryptography cannot prevent human errors, insider threats, or social engineering attacks. Its effectiveness also relies on the security of the underlying hardware and software.**

**Lemon.io: Understanding The Foundations Of Cryptography**

Jan 24, 2024 — Side-channel attacks: Gather information from physical characteristics like timing, power consumption, or electromagnetic leakage.

**ITU Online IT Training: Four reasons why cryptography is so hard to get right and four solutions**

Aug 2, 2019 — Cryptography can be hard for a number of reasons: \* It's hard to choose the right solution \* For example, secure mode of operation is not always the best choice.

**information-age.com: Decoding the CRYSTALS-Kyber attack using artificial intelligence: Examination and strategies for resilience**

Oct 26, 2024 — These attacks exploit data obtained from physically available channels, such as the timing or power consumption of the device.

**CEUR-WS.org: OWASP Top Ten: Cryptographic Failures**

If the implementation is not done correctly, it might introduce unintended weaknesses or vulnerabilities that can be exploited by attackers.

**Pentest People: Risks of Public Key Infrastructure: What You Need to Know**

Feb 26, 2025 — 4. Misconfiguration and Deployment Errors Risk: Weak encryption settings, mismanaged trust relationships, or errors in implementation.

**eMudhra Limited: Data Encryption in 2025: Algorithms, Use Cases & Challenges - Venn**

**Key Management Complexity.** Managing encryption keys securely is one of the most challenging aspects of any encryption strategy. The complexity of key management is often underestimated.

**Related Links: AI responses may include mistakes. Learn more: Cryptographic Challenges - Meegle**

**What are the challenges in implementing cryptography? Challenges include weak algorithms, poor key management, side-channel attacks, and hardware vulnerabilities.**

**Meegle: Challenges in Cryptography - IEEE Computer Society**

The secure distribution, storage, and frequent updating (even within a session) of secret keys is often the most difficult aspect of cryptography.

**IEEE Computer Society: Challenges of Cryptography for Low-Resource IoT Devices**

Jan 10, 2017 — Their minimal energy supply, limited memory, and sometimes restricted communication capabilities pose significant challenges.

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```

a:a,f);l.scrollLeft=e&&p?a:e&&k?-a:d;var b=g.getElementsByTagName("g-left-button")
[0],c=g.getElementsByTagName("g-right-button")[0];b&&c&&(e=
RegExp("\\bHT0l\\b"),k=RegExp("\\bpQXcHc\\
\\b"),b.className=b.className.replace(e,""),c.className=c.className.replace(e,""),b.
className=d===0?"pQXcHc
"+b.className:b.className.replace(k,""),c.className=d===f?"pQXcHc
"+c.className:c.className.replace(k,""),setTimeout(function(){b.className+="
tHT0l";c.className+=" tHT0l"},50))}};}).call(this);(function(){var
id='_uZo_aZ3TN4SzqtsPr-f2wQM_697';var index=0;var offset=0;var is_rtl=false;var
is_gecko=false;var is_edge=false;var init='Bqpk9e';window[init]
(id,index,offset,is_rtl,is_gecko,is_edge);})();

```

What are the challenges in cryptography?

Introduction to Cryptography | TU <https://www.itu.int> › Cybersecurity › Documents | TU <https://www.itu.int> › Cybersecurity › Documents PDF by MKG Adomey · Cited by 4 — Cryptography is an encryption system in which the sender and receiver of a message share a single, common key that is used to encrypt and decrypt the message. 52 pages

What is Cryptography? Definition, Importance, Types | Fortinet <https://www.fortinet.com> › resources › cyberglossary | Fortinet <https://www.fortinet.com> › resources › cyberglossary

Cryptography is the process of hiding or coding information so that only the person a message was intended for can read it.

What Is Cryptography? | IBM | IBM <https://www.ibm.com> › think › topics › cryptography | IBM <https://www.ibm.com> › think › topics › cryptography

Cryptography is the practice of developing and using coded algorithms to protect and obscure transmitted information.

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[r/cryptography](https://www.reddit.com/r/cryptography): For people interested in the mathematical and theoretical side of modern cryptography.

What people are saying

The Cryptography Concept Journey — Symmetric Encryption (Private Key Encryption)

Symmetric encryption (aka secret key cryptography) uses a single shared key to encrypt and decrypt data — as shown in the diagram below.... 1 day ago

Shlomi Boutnaru · Medium

Cybersecurity CTO at Rezilion

Can someone tell me if my (very basic) understanding of those notions is correct?

Popular comment · Notes on this.

First, on public key cryptography: If I send a message to `mallory_public_key`, I know the receiver has `mallory_private_key`. I do not know that the receiver is Mallory. I do not know that `mallory_public_key` and Mallory have anything to do with each other. But if the key is posted on a website Mallory is paying for, or on one of Mallory's social media feeds, that can count as evidence. (CAs do this in a machine-readable way: see the last part of my post)

Similarly, if I sign my message with `pyrex_private_key` the sender can use `pyrex_public_key` to prove I have `pyrex_private_key`.

Next, on Diffie-Hellman: Diffie-Hellman is a key agreement protocol, not a cipher. Its steps are: To start with, agree on a base  $g$ . Each party generates a private key:  $x, y$  Each party generates a public key:  $gx, gy$ . Each then uses that information to compute  $gxy$ . (a shared secret)

You can retrofit a cipher-like interface onto Diffie-Hellman by computing some of the steps in advance. For instance, this scheme is called ElGamal: I generate a secret number  $x$ , then publish a public key  $gx$ . You decide on a message  $m$  and a secret number  $y$ , then send me  $(m * gxy, gy)$ . I use my secret knowledge of  $x$  to compute  $gxy$  and then divide, recovering  $m$ .



This is equivalent to completing Diffie-Hellman with public keys  $g_x$  and  $g_y$ , then using the shared secret  $g_{xy}$  to encrypt one message. Next, on the reasons we use asymmetric crypto to agree on a session key: Not every public-key crypto scheme can encrypt every message. RSA is only secure if the message is a sufficiently large number that can't be guessed. (If it's guessable -- that is, taken from a small range of possibilities -- then someone who wants to know what you encrypted can use the receiver's public key to encrypt a variety of likely messages.) Note that in practice, RSA users will use an algorithm called a padding scheme to hide the original message. Most public key crypto schemes are slow and they often demand a lot of RNG. If you have access to a high quality source of lots of random numbers, you possibly already have the tools to just do symmetric crypto anyways!.

10+ comments · 11 hours ago

cryptographyRedditThe pro-Russia hacktivist group CyberVolk launched a ransomware-as-a-service (RaaS) called VolkLocker that suffered from serious implementation flaws, allowing victims to potentially decrypt files for free. [...] #Security

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The Cyber Security Hub™ · LinkedInCybersecurity portalWe are really not ready for what we are about to see with FHE.

A lot of people still dismiss FHE, thinking it's too slow but the craze for FHE is positioning it as the next major step after ZK in cryptography.

You can literally build things that were impossible before.

For example, you can deposit all your funds into a FHE-powered, password-protected vault and even if your wallet gets completely compromised, your funds can never be hacked or withdrawn.

Private key alone becomes worthless without the correct password.

I have already built this. I plan to share the private key publicly and announce a bounty for anyone who can withdraw the deposited funds using just that private key.

I planned to launch this today, but there are some issues with @zama's public decryption functionality that I need to wait for them to resolve before posting.

480+ likes · 16 hours ago

Zun2025 · XCrypto enthusiast & content creator7:35

Physics Girl. . With recent high-profile security decryption cases, encryption is more important than ever. Much of your browser usage and your smartphone data is encrypted. But what does that process actually entail? And when computers get smarter and faster?

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weeks agoipfconline1 · XDigital transformation consultantsCryptography Basics: The

Foundation of Our Digital WorldOct 6, 2025Sumit Sah · MediumEnvironmental

researcher & tech enthusiastI spent nearly two hours with a great leader and mentor on Thursday. So meet Joos Vandewalle, and who helped build a world-leading research infrastructure in areas of cryptography, AI and digital trust. YouTube:

https://lnkd.in/e4MjT5hw Spotify: https://lnkd.in/i4 reactions · 1 day agoProf Bill Buchanan

OBE FRSE · LinkedInProfessor of applied cryptographyIs studying cryptography a good

idea if I don't want to work for the NSA? Popular comment · Honestly, it wouldn't matter

much. Crypto work is highly specialized anyways and you'd never get work in that field

with just a minor. The people I know in that field all have math or CompSci PhDs (and

the latter is basically applied math).

The bigger issue I see is the lack of practical skills as a math major if you want to work in cybersecurity. I'm not sure you're in a competitive major for this career field. Math is a lot of high-level theory, but

- \* A bachelor's degree wouldn't be nearly enough to focus on the theory side

- \* The vast, vast majority of jobs in cybersecurity field involves practical, hands-on-keyboard skills that a math degree won't teach you. To be blunt: a college dropout with years of IT experience is a much more competitive candidate than a math major with no practical experience..10+ comments · 1 month ago

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engineering & computer science college(function(){

(this||self).Bqpk9e=function(f,d,n,e,k,p){var

g=document.getElementById(f);if(g&&(g.offsetWidth!==0||g.offsetHeight!==0)){var

l=g.querySelector("div"),h=l.querySelector("div"),a=0;f=Math.max(l.scrollWidth-

l.offsetWidth,0);if(d>0&&(h=h.children,a=h[d].offsetLeft-h[0].offsetLeft,e)){for(var

m=a=0;m<d;++m)a+=h[m].offsetWidth;a=Math.min(f,a)}a+=n;d=Math.min(e?f-

a:a,f);l.scrollLeft=e&&p?a:e&&k?-a:d;var b=g.getElementsByTagName("g-left-button")

[0],c=g.getElementsByTagName("g-right-button")[0];b&&c&&(e=

RegExp("\\bHT0\\b"),k=RegExp("\\bpQXcHc\\

\\b"),b.className=b.className.replace(e,""),c.className=c.className.replace(e,""),b.

className=d===0?"pQXcHc

" +b.className:b.className.replace(k,""),c.className=d===f?"pQXcHc

" +c.className:c.className.replace(k,""),setTimeout(function(){b.className+="

tHT0I";c.className+=" tHT0I"},50))}}).call(this);(function(){var

id='\_uZo\_aZ3TN4SzqtsPr-f2wQM\_380';var index=0;var offset=0;var is\_rtl=false;var

is\_gecko=false;var is\_edge=false;var init='Bqpk9e';window[init]

(id,index,offset,is\_rtl,is\_gecko,is\_edge);})();Crypto evolution shifts. Quantum computing

threats are pushing cryptography toward post-quantum solutions, impacting blockchain

security and digital ownership, with companies actively rewriting the rules. Quantum computing threats are pushing cryptography toward post-quantum solutions, impacting blockchain security and digital ownership, with companies actively rewriting the rules. Generative AI is experimental. Learn more The quantum encryption problem isn't 20 years away. I think it's already creating risk today Popular comment · When you do everything right, people will think you did nothing at all. I think you nailed it. This is the challenge of security in general..10+ comments · 3 days ago /quantumRedditThe Post Quantum Migration of Blockchain | by Prof Bill Buchanan OBE FRSE | ASecuritySite: When Bob Met Alice310+ likes · Aug 2, 2025Prof Bill Buchanan OBE FRSEMediumI think it's very clear Quranium is forging the next frontier of quantum proof identity, security, and sovereign digital ownership

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THE BREAKTHROUGH:

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operates in a decentralized world by turning data, models, and compute into on-chain assets that can earn rather than be given away for free.

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practice and study of techniques for secure communication in the presence of adversarial behavior. More generally, cryptography is about constructing and analyzing protocols that prevent third parties or the public from reading private messages. Source: Wikipedia WikipediaMoreLessDescription(function(){var id='\_uZo\_aZ3TN4SzqtsPr-f2wQM\_96';var cid='\_uZo\_aZ3TN4SzqtsPr-f2wQM\_97';var nh=1;var b=cid,c=nh;const d=document.getElementById(id),e=d==null?void 0:d.querySelector(`#\${b}`);var f;if(f=d&&e){const a=e.offsetHeight;if(a===0)f=!1;else{var g=Number(e.style.getPropertyValue("-webkit-line-clamp"));f=e.scrollHeight<=a+a/g\*(c+.5)}}if(f){let a;(a=d.querySelector("[data-br]"))==null||a.style.setProperty("display","none");d.setAttribute("expanded","");}};})();(function(){var id='\_uZo\_aZ3TN4SzqtsPr-f2wQM\_94';(function(){function t(b,a,d,f,h){var c=Array.prototype.slice.call(b.querySelectorAll("[data-vdb]"));c.length!==0&&(c[0].classList.contains(h)&&c.shift(),c.length>3||(b.hasAttribute("data-gr5-init")||(c.forEach(function(e){e.classList.contains(f)&&e.setAttribute("data-tall","1");e.classList.contains(d)?e.setAttribute("data-wide","1"):b.setAttribute("data-gr5-nw","1")})),b.setAttribute("data-gr5-init","1")),a?(a=!b.hasAttribute("data-gr5-nw"),c.length===1?c[0].classList.add(d):c.length===2?(c[0].classList.add(f),c[0].classList.remove(d),c[1].classList.add(f),c[1].classList.remove(d)):c.length===3&&a&&(c[0].classList.add(f),c[0].classList.remove(d),c[1].classList.add(f),c[1].classList.remove(d),c[2].classList.remove(f),c[2].classList.add(d)):c.forEach(function(e){e.hasAttribute("data-wide")?e.classList.add(d):e.classList.remove(d);e.hasAttribute("data-tall")?e.classList.add(f):e.classList.remove(f)}))}}var u=document.getElementById(id);(function(b){if(b){var a=b.querySelector("[data-ocn="1"]);if(a){var d=a.classList[0],f=a.classList[1],h=a.classList[2],c=a.classList[3],e=a.classList[4],A=a.classList[5],B=a.classList[6],C=a.classList[7],D=a.classList[8],J=a.classList[9],K=a.classList[10],L=a.classList[11],M=a.classList[12],N=a.classList[13],O=a.classList[14],P=a.classList[15],k=b==null?void 0:b.querySelector(". "+c);f=k==null?void 0:k.querySelector(". "+f);var y=b.parentElement;if(k&&y){var Q=f==null?void 0:f.classList.contains(h),E,F=(E=b.querySelector(". "+a.classList[16]))==null?void 0:E.classList.contains(M),v=function(g,r){for(var p=[e,A,B,D],m=0;m<p.length;m++){var n=p[m];n===r?g.classList.add(n):g.classList.remove(n)}};a=function(){var g=y.offsetWidth;if(!(g<=0||b.offsetWidth<=0)){var r=b.closest(". "+K),p=b.closest(". "+J),m=b.hasAttribute("data-rfcl2"),n=!b.classList.contains(L),q=n&&g<=290,l=n&&g>290&&(g<=598||m),w=n&&!m&&g>598&&(g<868||p&&!m);p=n&&!m&&!p&&g<1080&&g>=868&&!w;(g=F&&w||l&&g<398||q&&g<200)?b.classList.add(C):b.classList.remove(C);b.dataset.nmc=w?"3":l?"2":q?"1":0;q?(v(b,e),Q||g?k.classList.add(d):k.classList.remove(d)):!(v(b,A),l&&g?k.classList.add(d):k.classList.remove(d)):w?(v(b,B),k.classList.add(d)):v(b,p?D:""),k.classList.remove(d));F&&t(b,l,N,O,P);r=y.querySelectorAll("[data-vdb]");for(q=0;q<r.length;q++)l=r[q],l.offsetWidth<(l.hasAttribute("data-nar")?100:230)?l.setAttribute("data-rsw","1"):l.removeAttribute("data-rsw")}};a();window.setTimeout(a,0);window.addEventListener("resize",a)}}})(u);(function(b){if(b){var a=Array.prototype.slice.call(b.querySelectorAll("div[data-

```

vist]")),d=[],f=[];a.forEach(function(h){var
c=window.getComputedStyle(h);h=Number(c.getPropertyValue("padding-
top").replace("px",""));c=Number(c.getPropertyValue("line-
height").replace("px",""));d.push(h);f.push(c));b=function(){a.forEach(function(h,c){var
e=h.closest("div[data-vdb]");e&&(h.offsetHeight>d[c]+f[c]+1?e.setAttribute("data-long-
title","1"):e.removeAttribute("data-long-
title"))});b();window.addEventListener("resize",b))(u);for(var x=u==null?void
0:u.querySelectorAll("[data-uncol]"),z,G=0;G<((z=x)==null?void 0:z.length);G++){var
H=x[G],l=H.closest("[data-
expandable]");l&&(H.scrollHeight<=H.offsetHeight+Number(H.dataset.lh)*1.5&&(delete
l.dataset.collapsed,delete l.dataset.expandable,l.dataset.uncollapsible="1"),delete
H.dataset.uncol)}
(function(b){b.querySelectorAll("[data-nohu]").forEach(function(a){var d=a.closest("[data-
vdb]");d&&(d.dataset.nohu="1",a.dataset.hovt&&(a=d.querySelector("[data-
vist]"))&&(a.addEventListener("mouseenter",function(){delete
d.dataset.nohu}),a.addEventListener("mouseleave",function()
{d.dataset.nohu="1"}))));b.querySelectorAll("[data-yeshu]").forEach(function(a)
{(a=a.closest("[data-vdh]"))&&(a.dataset.yeshu="1"))}(u);}).call(this);})();      People
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.i1eWpb .GTERze{display:none}.ky4hfd{display:none}.i1eWpb .ky4hfd{display:block}
(function(){var rfld=true;var hfr=true;(function(){var h=["script","style","h2"];function k(a)
{if(a.id=="JOAHU")return[].slice.call(a.children).some(k);var
c=a.tagName.toLowerCase();return!h.some(function(b){return b===c})&&!
l(a)&&a.hasChildNodes()}function m(a){for(var
c=document.getElementsByClassName("kCoste"),b=0;b<c.length;b++)a?
c[b].classList.add("jjOEKc"):c[b].classList.remove("jjOEKc")}function l(a){return
a.getAttribute("data-rrhs")==="1"}
function t(){var a=u,c=document.getElementById("H3wGC");if(c){var
b=document.getElementById("center_col");if(b){var
f=b.getElementsByClassName("A6K0A");if(b=document.getElementById("rhs")){var
n=[].slice.call(f).concat([].slice.call(b.getElementsByClassName("A6K0A"))).filter(l).sort(f
unction(d,g){return Number(d.getAttribute("data-rpos"))-Number(g.getAttribute("data-
rpos"))});b=function(){var d=0;n.forEach(function(g){var e=g.getAttribute("data-
rpos");if(e){var p=!1;for(e=Number(e);d<f.length;d++){var q=
f[d],r=q.getAttribute("data-rpos");if(r&&e<=Number(r))
{q.insertAdjacentElement("beforebegin",g);p=!0;break}}e=f[f.length-1];!
p&&e&&e.insertAdjacentElement("afterend",g)}};m(!0)};var v=function()
{n.forEach(function(d){c.insertAdjacentElement("beforebegin",d)});m(!1)};a?
(google.log("", "&rrwt=1"),b()): (google.log("", "&rrntw=1"),v())}}
function w(){var a=document.getElementById("rhs");if(a){var
c=[].slice.call(a.children).some(function(b){return k(b)&&!
b.classList.contains("SjLxGf")});a.classList.toggle("jBpNZc",!c);
(a=document.getElementById("main"))&&a.classList.toggle("n48JGd",!c)}}var x=!
0;if(typeof rfld!="undefined"){var y=rfld,u=window.matchMedia("(max-width:

```



799.98px)").matches;(x=y!==u)?t():google.log("",u?"&rrntn=1":"&rrwtw=1");u&&typeof  
hfr!=="undefined"&&hfr===!0&&w();}).call(this;)}());@-webkit-keyframes allow-alert  
{from{opacity:1}to{opacity:.35}}.pulGge{position:sticky;top:100vh}Footer LinksResults  
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Share your videos with friends, family, and the world.  
Program creators  
Rebecca Sloan, Joseph Pelling, Baker Terry

+1  
Networks

YouTube, Channel 4

Ratings

IMDb

8.7/10

Don't Hug Me I'm Scared

Wikipedia

[https://en.wikipedia.org › wiki › Don't\\_Hug\\_Me\\_I'm\\_S...](https://en.wikipedia.org/wiki/Don't_Hug_Me_I'm_Scared)

Don't Hug Me I'm Scared is a British surrealist adult puppet musical comedy horror web series created by Becky Sloan and Joe Pelling that consists of six short ...

Don't Hug Me I'm Scared from en.wikipedia.org

Don't Hug Me I'm Scared (TV...

Popee the Performer

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Don't Hug Me I'm Scared from [www.youtube.com](http://www.youtube.com)

Characters

Red Guy

Joseph Pelling

Duck

Baker Terry

Spinach Can

Rebecca Sloan

Lesley

Vivienne Soan

Shovel  
Kellen Goff  
Cast

Joseph Pelling  
Red Guy

Rebecca Sloan  
Sketchbook

TomSka  
Magnet

Kellen Goff  
Shovel

Baker Terry  
Duck

Sam Campbell

Joss Carter  
Red Guy

Charlie Pelling

Lolly Adefope  
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It perfectly balances ridiculous comedy, graphic horror imagery and a deep seeded story that rewards you for paying attention and rewatching to pick up new ...

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3:25  
Learn to be creative by seeing silly faces in oranges, finding shapes in clouds, and arranging leaves and sticks in your favorite colors.

Don't Hug Me I'm Scared 4  
YouTube · Don't Hug Me .I'm Scared  
Mar 31, 2015  
YouTube · Don't Hug Me .I'm Scared

5:02  
In this episode of Don't Hug Me I'm Scared, a computer asks for personal information and introduces a digital world with activities like dancing and painting.

Don't Hug Me I'm Scared 2 - TIME  
YouTube · Don't Hug Me .I'm Scared  
Jan 8, 2014  
YouTube · Don't Hug Me .I'm Scared

3:42  
A song about time from "Don't Hug Me I'm Scared", exploring the past, present, and future, and the importance of time.

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Reddit · r/horror  
30+ comments · 3 years ago

A newly commissioned TV series version of the cult YouTube classic 'Don't Hug Me I'm Scared' is on All4 as we speak. The show is endlessly creative and ...

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Don't Hug Me I'm Scared is fantastic : r/BritishTV - Reddit

51 posts

Sep 8, 2023

What does the title phrase 'don't hug me I'm scared ...

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Don't Hug Me I'm Scared

Channel 4

<https://www.channel4.com> › programmes › dont-hug-...

Join Red Guy, Yellow Guy and Duck as they learn everything there is to know with the help of some friendly talking objects, in this comedy-horror puppet show.

Episode 1

Episode 2 Death: In today's...

Episode 3

Episode 4

New 'Don't Hug Me I'm Scared' Website Home Goes Live ...

Animation Magazine

<https://www.animationmagazine.net> › 2024/12 › new-d...

Dec 6, 2024 — Blink Industries and BAFTA Award-winning directors Becky and Joe have unveiled today the Don't Hug Me I'm Scared website.

Watch | Don't Hug Me I'm Scared - DHMIS.tv

dhmis.tv

<https://dhmis.tv> › watch

Red, Yellow Guy and Duck meet two adorable twins who teach them the importance of being part of a family. Episode 4. 4. Friendship.

Don't Hug Me I'm Scared from [dhmis.tv](http://dhmis.tv)

Don't Hug Me I'm Scared : The Series by Becky and Joe

Kickstarter

<https://www.kickstarter.com> › projects › dont-hug-me-i...

Feb 22, 2017 — Imagine a show that can teach you ALL YOU NEED TO KNOW ABOUT EVERYTHING in short musical installments. That show is Don't Hug Me I'm Scared.

Don't Hug Me I'm Scared from [www.kickstarter.com](http://www.kickstarter.com)

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Overview

8.7/10 · IMDb

96% liked this TV show

Google users

Juxtaposing a childlike, colourful environment and its inhabitants against disturbing themes.

Program creators: Rebecca Sloan, Joseph Pelling, Baker Terry

Networks: YouTube, Channel 4

No. of episodes: 6

First episode date: July 29, 2011 (UK)

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Since 2020

Petscop

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This article is about the thought experiment. For other uses, see Ship of Theseus (film) and Ship of Theseus (manga).

Drawings of a ship getting its parts replaced

As the parts of the ship are replaced, the question remains as to whether it is the same ship throughout.

The Ship of Theseus, also known as Theseus's Paradox, is a paradox and common thought experiment about whether an object (in the most common stating of the paradox, a ship) is the same object after having all of its original components replaced with others over time.

In Greek mythology, Theseus, the mythical king of the city of Athens, rescued the children of Athens from King Minos after slaying the minotaur and then escaped onto a ship going to Delos. Each year, the Athenians would commemorate this by taking the craft on a pilgrimage to Delos to honour Apollo. Over time, some of its boards rotted and were replaced. A question was raised by ancient philosophers: If no pieces of the original made up the current ship, was it still the Ship of Theseus? If it was no longer the same, when had it ceased existing as the original ship? Seventeenth century philosopher Thomas Hobbes raised the further question of how to consider a second ship that had been built entirely from pieces removed from the original.

In contemporary philosophy, the thought experiment has applications to the philosophical study of identity over time. Within the contemporary philosophy of mind, it has inspired a variety of proposed solutions and concepts regarding the persistence of personal identity.

## History

A fresco from Pompeii depicting Theseus and Ariadne escaping from Crete. According to Plutarch, the Athenians preserved the ship that Theseus used to escape by replacing the parts one by one as they decayed.

In its original formulation, the "Ship of Theseus" paradox concerns a debate over whether a ship that has had all of its components replaced one by one would remain the same ship.[1] The account of the problem has been preserved by Plutarch in his *Life of Theseus*: [2]

The ship wherein Theseus and the youth of Athens returned from Crete had thirty oars, and was preserved by the Athenians down even to the time of Demetrius Phalereus, for they took away the old planks as they decayed, putting in new and strong timber in their places, insomuch that this ship became a standing example among the philosophers, for the logical question of things that grow; one side holding that the ship remained the same, and the other contending that it was not the same.

—Plutarch, *Life of Theseus* 23.1

The seventeenth century philosopher Thomas Hobbes extended the thought experiment by supposing that a ship custodian gathered up all of the decayed parts as they were disposed and used them to build a second ship, [2] then asked which of the two—the custodian's or the Athenians'—was the "original" ship.[1]

For if that Ship of Theseus (concerning the Difference whereof, made by continual restoration, in taking out the old Planks, and putting in new, the sophisters of Athens were wont to dispute) were, after all the Planks were changed, the same Numerical Ship it was at the beginning; and if some Man had kept the Old Planks as they were taken out, and by putting them afterward together in the same order, had again made a Ship of them, this would, without doubt, had also been the same Numerical Ship with that which was at the beginnings and so there would have been two Ships Numerically the same, which is absurd... But we must consider by what name anything is called when we inquire concerning the Identity of it... so that a Ship, which signifies Matter so figured, will be the same, as long as the Matter remains the same; but if no part of the Matter is the same, then it is Numerically another Ship; and if part of the Matter remains, and part is changed, then the Ship will be partly the same, and partly not the same.

—Hobbes, "Of Identity and Difference"[3]

Hobbes considers the two resulting ships as illustrating two definitions of "Identity" or sameness, form and matter, that are being compared to the original ship:

the ship that maintains the same "form" as the original, that which persists through complete replacement of material and;

the ship made of the same "matter", that which stops being 100 per cent the same ship when the first part is replaced.[3][4]



### Proposed resolutions

The Ship of Theseus paradox can be thought of as an example of a puzzle of material constitution — that is, a problem with determining the relationship between an object and the material of which it is made.[1]

### Constitution is not identity

According to the Stanford Encyclopedia of Philosophy, the most popular solution is to accept the conclusion that the material out of which the ship is made is not the same object as the ship, but that the two objects simply occupy the same space at the same time.[1]

### Temporal parts

Main article: Temporal parts

Another common theory, put forth by twentieth century American philosopher David Lewis, is to divide up all objects into three-dimensional time-slices which are temporally distinct. This avoids the issue that the two different ships exist in the same space at one time and a different space at another time by considering the objects to be distinct from each other at all points in time.[1]

### Cognitive science

According to other scientists, the thought puzzle arises because of extreme externalism: the assumption that what is true in our minds also holds true in the world.[5] Noam Chomsky says that this is not an unassailable assumption, from the perspective of the natural sciences, because human intuition is often mistaken.[6] Cognitive science would treat this thought puzzle as the subject of an investigation of the human mind. Studying this human confusion can reveal much about the brain's operation, but little about the nature of the human-independent external world.[7]

Following on from this observation, a significant strand[who?] in cognitive science would consider the ship not as a thing, nor even a collection of objectively existing thing parts, but rather as an organisational structure that has perceptual continuity.[8]

### Deflationism

According to the Stanford Encyclopedia of Philosophy, the deflationist view is that the facts of the thought experiment are undisputed; the only dispute is over the meaning of the term "ship" and is thus merely verbal.[1] American philosopher Hilary Putnam asserts that "the logical primitives themselves, and in particular the notions of object and existence, have a multitude of different uses rather than one absolute 'meaning'." [9] This thesis—that there are many meanings for the existential quantifier that are equally natural and equally adequate for describing all the facts—is often referred to as "the doctrine of quantifier variance." [10]

### Continued identity theory

This solution (proposed by Kate, Ernest et al.) sees an object as staying the same as long as it continuously and metaphysically exists under the same identity without being

fully transformed at one time. For instance, a house that has its front wall destroyed and replaced at Year One, the ceiling replaced at Year Two, and so on, until every part of the house has been replaced will still be understood as the same house. However, if every wall, the floor, and the roof are destroyed and replaced at the same time, it will be regarded as a new house.[citation needed]

#### Alternative forms

In Europe, several independent tales and stories feature knives of which the blades and handles had been replaced several times but are still used and represent the same knife. France has Jeannot's knife,[11][12] Spain uses Jeannot's knife as a proverb, though it is referred to simply as "the family knife", and Hungary has "Lajos Kossuth's pocket knife". Several variants or alternative statements of the underlying problem are known, including the grandfather's axe[13], where an old axe has had both its head and its handle replaced, leaving no original components. In Britain the term Trigger's broom is sometimes used, in reference to a line from the sitcom *Only Fools and Horses* in which road sweeper Trigger says that he has used the same broom for 20 years, with it only needing 17 new heads and 14 new handles in that time.[14][15][16]

The ancient Buddhist text *Da zhidu lun* contains a similar philosophical puzzle: a story of a traveller who encountered two demons in the night. As one demon ripped off all parts of the traveler's body one by one, the other demon replaced them with those of a corpse, and the traveller was confused about who he was.[17]

The French critic and essayist Roland Barthes refers at least twice to a ship that is entirely rebuilt, in the preface to his *Essais Critiques* (1971) and later in his *Roland Barthes par Roland Barthes* (1975); in the latter, the persistence of the form of the ship is seen as a key structuralist principle. He calls this ship the *Argo*, on which Theseus was said to have sailed with Jason; he may have confused the *Argo* (referred to in passing in Plutarch's *Theseus* at 19.4) with the ship that sailed from Crete (*Theseus*, 23.1).

In Japan, the Ise Grand Shrine is rebuilt every twenty years with entirely "new wood". The continuity over the centuries is considered spiritual and comes from the source of the wood, which is harvested from an adjoining forest that is considered sacred.[18][19]

In the United States, a man claims to own the axe that George Washington used to cut down the cherry tree, but the axe's handle has been replaced twice and its head once. [20]

See also

Bundle theory – Philosophical theory by David Hume

Haecceity – Term from medieval scholastic philosophy

Interchangeable parts – Practically identical components

Mereological essentialism – Thesis in philosophy that a whole ceases to exist if it loses a part

Neurath's boat – Philosophical analogy about knowledge  
Perdurantism – Philosophical theory of persistence  
Philosophy of self – Concept in philosophy  
Przekładaniec – 1968 film by Andrzej Wajda  
Sorites paradox – Logical paradox from vague predicates  
Śūnyatā – Religious concept of emptiness  
Swampman – Philosophical thought experiment concerning personal identity  
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Ayahuasca

Ayahuasca being brewed in Iquitos, Peru

Source plant(s)

Liana

*Banisteriopsis caapi*

Part(s) of plant

Stems of the *Banisteriopsis caapi*

Leaves of the *Psychotria viridis*

Geographic origin   South America

Active ingredients

Dimethyltryptamine (DMT)

Harmala alkaloids like harmine and harmaline as MAOI

Uses   Polysubstance indigenous drink

Ayahuasca<sup>[note 1]</sup> is a South American psychoactive decoction prepared from *Banisteriopsis caapi* vine and a dimethyltryptamine (DMT)-containing plant, used by Indigenous cultures in the Amazon and Orinoco basins as part of traditional medicine and shamanism.<sup>[1]</sup> The word ayahuasca, originating from Quechuan languages spoken in the Andes, refers both to the *B. caapi* vine and the psychoactive brew made from it, with its name meaning 'spirit rope' or 'liana of the soul'.

The specific ritual use of ayahuasca was widespread among Indigenous groups by the 19th century, though its precise origin is uncertain. Ayahuasca is traditionally prepared

by macerating and boiling *B. caapi* with other plants like *Psychotria viridis* during a ritualistic, multi-day process. Ayahuasca has been used in diverse South American cultures for spiritual, social, and medicinal purposes, often guided by shamans in ceremonial contexts involving specific dietary and ritual practices, with the Shipibo-Konibo people playing a significant historical and cultural role in its use. It spread widely by the mid-20th century through syncretic religions in Brazil. In the late 20th century, ayahuasca use expanded beyond South America to Europe, North America, and elsewhere, leading to legal cases, non-religious adaptations, and the development of ayahuasca analogues (i.e., variants) using local or synthetic ingredients.

While DMT is internationally classified as a controlled substance, the plants containing it—including those used to make ayahuasca—are not regulated under international law, leading to varied national policies that range from permitting religious use to imposing bans or decriminalization. The United States patent office controversially granted, challenged, revoked, reinstated, and ultimately allowed to expire a patent on the ayahuasca vine, sparking disputes over intellectual property rights and the cultural and religious significance of traditional Indigenous knowledge.

Ayahuasca produces intense psychological and spiritual experiences with potential therapeutic effects.[2] Ayahuasca's psychoactive effects primarily result from DMT, rendered orally active by harmala alkaloids in *B. caapi*, which act as reversible inhibitors of monamine oxidase; *B. caapi* and its  $\beta$ -carbolines also exhibit independent contributions to ayahuasca's effects, acting on serotonin and benzodiazepine receptors. [3][4] Systematic reviews show ayahuasca has strong antidepressant and anxiolytic effects with generally safe traditional use, though higher doses of ayahuasca or harmala alkaloids may increase risks.

## Preparation

Ayahuasca being prepared in the Napo region of Ecuador

Sections of *Banisteriopsis caapi* vine are macerated and boiled alone or with leaves from any of a number of other plants, including *Psychotria viridis* (chacruna), *Diplopterys cabrerana* (also known as chaliponga and chacropanga),[5] and *Mimosa tenuiflora*, among other ingredients which can vary greatly from one shaman to the next. The resulting brew may contain the powerful psychedelic drug dimethyltryptamine and monoamine oxidase inhibiting harmala alkaloids, which are necessary to make the DMT orally active by allowing it (DMT) to be processed by the liver. The traditional making of ayahuasca follows a ritual process that requires the user to pick the lower Chacruna leaf at sunrise, then say a prayer. The vine must be "cleaned meticulously with wooden spoons"[6] and pounded "with wooden mallets until it's fibre." [6]

Brews can also be made with plants that do not contain DMT, *Psychotria viridis* being replaced by plants such as *Justicia pectoralis*, *Brugmansia*, or sacred tobacco, also known as mapacho (*Nicotiana rustica*), or sometimes left out with no replacement. This brew varies radically from one batch to the next, both in potency and psychoactive

effect, based mainly on the skill of the shaman or brewer, as well as other admixtures sometimes added and the intent of the ceremony. Natural variations in plant alkaloid content and profiles also affect the final concentration of alkaloids in the brew, and the physical act of cooking may also serve to modify the alkaloid profile of harmala alkaloids.[7][8]

The actual preparation of the brew takes several hours, often taking place over the course of more than one day. After adding the plant material, each separately at this stage, to a large pot of water, it is boiled until the water is reduced by half in volume. The individual brews are then added together and brewed until reduced significantly. This combined brew is what is taken by participants in ayahuasca ceremonies.

### Traditional use

#### Ayahuasca cooking in the Loreto region of Peru

#### Ayahuasca being prepared in Ecuador

The uses of ayahuasca in traditional societies in South America vary greatly.[9] Some cultures do use it for shamanic purposes, but in other cases, it is consumed socially among friends, in order to learn more about the natural environment, and even in order to visit friends and family who are far away.[9]

Nonetheless, people who work with ayahuasca in non-traditional contexts often align themselves with the philosophies and cosmologies associated with ayahuasca shamanism, as practiced among Indigenous peoples like the Urarina of the Peruvian Amazon.[10][9] Dietary taboos are often associated with the use of ayahuasca,[11] although these seem to be specific to the culture around Iquitos, Peru, a major center of ayahuasca tourism.[9] Ayahuasca retreats or healing centers can also be found in the Sacred Valley of Peru, in areas such as Cusco and Urubamba, where similar dietary preparations can be observed. These retreats often employ members of the Shipibo-Konibo tribe, an indigenous community native to the Peruvian Amazon.[12]

In the rainforest, these taboos tend towards the purification of one's self—abstaining from spicy and heavily seasoned foods, excess fat, salt, caffeine, acidic foods (such as citrus) and sex before, after, or during a ceremony. A diet low in foods containing tyramine has been recommended, as the speculative interaction of tyramine and MAOIs could lead to a hypertensive crisis; however, evidence indicates that harmala alkaloids act only on MAO-A, in a reversible way similar to moclobemide (an antidepressant that does not require dietary restrictions). Dietary restrictions are not used by the highly urban Brazilian ayahuasca church União do Vegetal, suggesting the risk is much lower than perceived and probably non-existent.[11]

The ritual use of ayahuasca by the Achuar people is featured in the Bruce Parry 2008 documentary series *Amazon*, in which Parry forces himself to participate in the rite.

## Ceremony and the role of shamans

Shamans, curanderos and experienced users of ayahuasca advise against consuming ayahuasca when not in the presence of one or several well-trained shamans.[13]

In some areas, there are purported brujos (Spanish for "witches") who masquerade as real shamans and who entice tourists to drink ayahuasca in their presence. Shamans believe one of the purposes for this is to steal one's energy and/or power, of which they believe every person has a limited stockpile.[13]

The shamans lead the ceremonial consumption of the ayahuasca beverage,[14][15] in a rite that typically takes place over the entire night. During the ceremony, the effect of the drink lasts for hours. Prior to the ceremony, participants are instructed to abstain from spicy foods, red meat and sex.[16] The ceremony is usually accompanied with purging which include vomiting and diarrhea, which is believed to release built-up emotions and negative energy.[17][15]

## Shipibo-Konibo and their relation to Ayahuasca

It is believed that the Shipibo-Konibo are among the earliest practitioners of Ayahuasca ceremonies, with their connection to the brew and ceremonies surrounding it dating back centuries, perhaps a millennium.[18]

Some members of the Shipibo community have taken to the media to express their views on Ayahuasca entering the mainstream, with some calling it "the commercialization of ayahuasca." Some of them have even expressed their worry regarding the increased popularity, saying "the contemporary 'ayahuasca ceremony' may be understood as a substitute for former cosmogonical rituals that are nowadays not performed anymore."[19]

## Icaros

The Shipibo have their own language, called Shipibo, a Panoan language spoken by approximately 26,000 people in Peru and Brazil. This language is commonly sung by the shaman in the form of a chant, called an Icaro,[15] during the Ayahuasca ritual as a way to establish a "balance of energy" during the ritual to help protect and guide the user during their experience.[20]

## Traditional brew

### B. caapi inflorescence

Traditional ayahuasca brews are usually made with *Banisteriopsis caapi* as an MAOI, while dimethyltryptamine sources and other admixtures vary from region to region. There are several varieties of caapi, often known as different "colors", with varying effects, potencies, and uses.

## DMT admixtures:

Psychotria viridis (Chacruna)[21] – leaves  
Psychotria carthagenensis (Amyruca)[21] – leaves  
Diplopterys cabrerana (Chaliponga, Chagropanga, Banisteriopsis rusbyana)[21] – leaves  
Mimosa tenuiflora (M. hostilis) - root bark  
Other common admixtures:

Justicia pectoralis[22]  
Brugmansia sp. (Toé)[21]  
Opuntia sp.[23]  
Epiphyllum sp. [23]  
Cyperus sp.[23]  
Nicotiana rustica[21] (Mapacho, variety of tobacco)  
Ilex guayusa,[21] a relative of yerba mate  
Lygodium venustum, (Tchai del monte)[23]  
Phrygilanthus eugenoides and Clusia sp (both called Miya)[23]  
Lomariopsis japurensis (Shoka)[23]  
Common admixtures with their associated ceremonial values and spirits:

Ayahuma[21] bark: Cannon Ball tree. Provides protection and is used in healing susto (soul loss from spiritual fright or trauma).  
Capirona[21] bark: Provides cleansing, balance and protection. It is noted for its smooth bark, white flowers, and hard wood.  
Chullachaki caspi[21] bark (Byrsonima christianeae): Provides cleansing to the physical body. Used to transcend physical body ailments.  
Lopuna blanca bark: Provides protection.  
Punga amarilla bark: Yellow Punga. Provides protection. Used to pull or draw out negative spirits or energies.  
Remo caspi[21] bark: Oar Tree. Used to move dense or dark energies.  
Wyra (huaira) caspi[21] bark (Cedrelina catanaeformis): Air Tree. Used to create purging, transcend gastro/intestinal ailments, calm the mind, and bring tranquility.  
Shiwawaku bark: Brings purple medicine to the ceremony.  
Uchu sanango: Head of the sanango plants.  
Huacapurana: Giant tree of the Amazon with very hard bark.  
Bobinsana (Calliandra angustifolia): Mermaid Spirit. Provides major heart chakra opening, healing of emotions and relationships.

#### Non-traditional use

In the late 20th century, the practice of ayahuasca drinking began spreading to Europe, North America and elsewhere.[24] The first ayahuasca churches, affiliated with the Brazilian Santo Daime, were established in the Netherlands. A legal case was filed against two of the Church's leaders, Hans Bogers (one of the original founders of the Dutch Santo Daime community) and Geraldine Fijneman (the head of the Amsterdam Santo Daime community). Bogers and Fijneman were charged with distributing a controlled substance (DMT); however, the prosecution was unable to prove that the use of ayahuasca by members of the Santo Daime constituted a sufficient threat to public

health and order such that it warranted denying their rights to religious freedom under ECHR Article 9. The 2001 verdict of the Amsterdam district court is an important precedent. Since then groups that are not affiliated to the Santo Daime have used ayahuasca, and a number of different "styles" have been developed, including non-religious approaches.[25]

In Peru, retreat centers such as Blue Morpho, founded by Hamilton Souther, in Iquitos began offering ayahuasca ceremonies to foreign visitors around 2004. International media coverage brought wider attention to the practice and coincided with the growth of ayahuasca tourism.[26][27][28]

Ayahuasca variants

See also: Pharmahuasca

Syrian rue seeds can be used to provide an MAOI.

icon

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In modern Europe and North America, ayahuasca analogues (i.e., variants) are often prepared using non-traditional plants which contain the same alkaloids. For example, seeds of the Syrian rue plant can be used as a substitute for the ayahuasca vine, and the DMT-rich *Mimosa hostilis* is used in place of chacruna. Australia has several indigenous plants which are popular among modern ayahuasqueros there, such as various DMT-rich species of *Acacia*.

The name "ayahuasca" specifically refers to a botanical decoction that contains *Banisteriopsis caapi*.

Brews similar to ayahuasca may be prepared using several plants not traditionally used in South America:

DMT admixtures:

*Acacia maidenii* (Maiden's wattle) – bark \*not all plants are "active strains", meaning some plants will have very little DMT and others larger amounts

*Acacia phlebophylla*, and other *Acacias*, most commonly employed in Australia – bark

*Anadenanthera peregrina*, *A. colubrina*, *A. excelsa*, *A. macrocarpa*

*Desmanthus illinoensis* (Illinois bundleflower) – root bark is mixed with a native source of carbolines (e.g., passion flower in North America) to produce a hallucinogenic drink called prairiehuasca.[29]

MAOI admixtures:

Harmal (*Peganum harmala*, Syrian rue) – seeds

Passion flower

Synthetic MAOIs, especially RIMAs (due to the dangers presented by irreversible MAOIs)

#### Effects

See also: Dimethyltryptamine § Subjective effects

People who have consumed ayahuasca report having mystical experiences and spiritual revelations regarding their purpose on earth, the true nature of the universe, and deep insight into how to be the best person they possibly can.[30] Many people also report therapeutic effects, especially around depression and personal traumas.[31]

This is viewed by many as a spiritual awakening and what is often described as a near-death experience or rebirth.[13]:67–70 It is often reported that individuals feel they gain access to higher spiritual dimensions and make contact with various spiritual or extra-dimensional beings who can act as guides or healers.[32]

The experiences that people have while under the influence of ayahuasca are also culturally influenced.[9] Westerners typically describe experiences with psychological terms like "ego death" and understand the hallucinations as repressed memories or metaphors of mental states.[9] However, at least in Iquitos, Peru (a center of ayahuasca ceremonies), those from the area describe the experiences more in terms of the actions in the body and understand the visions as reflections of their environment, sometimes including the person who they believe caused their illness, as well as interactions with spirits.[9]

#### Contraindications

Ayahuasca has a number of major contraindications due to its action as a monoamine oxidase inhibitor (MAOI) and the potential for serious drug interactions.[33][34] These include concomitant use with serotonergic agents like selective serotonin reuptake inhibitors (SSRIs), MDMA, and dextromethorphan (DXM) due to risk of serotonin syndrome, sympathomimetics like amphetamines and cocaine due to risk of hypertensive crisis, and certain other drugs.[33][34] Little information is available on ayahuasca in people with cardiovascular disease and whether there may be contraindications in this area.[35] In any case, it has been said that cardiovascular problems, as well as endocrine problems, abnormal lipid metabolism, glaucoma, fever, and pregnancy are all contraindications of ayahuasca.[34] Certain psychiatric disorders such as psychosis or family history of them may also be contraindications of ayahuasca.[34]

#### Adverse effects

Although ayahuasca is generally safe in traditional use, adverse effects can occur.[36] [37] In the short term, ingesting ayahuasca can cause nausea, vomiting, and diarrhea. These three effects, known as purging, are traditionally recognized to be a part of the spiritual experience of ayahuasca. Physiologically, vomiting may be related to increased serotonergic signaling in the gut, which directly stimulates the vagus nerve.[38] Other short-term side effects include increased blood pressure and tachycardia. Additionally, increased secretion of hormones like prolactin, cortisone, and growth hormone has

been correlated with ayahuasca consumption.[2] Rarer side effects include shortness of breath, seizures and serotonin syndrome. Ayahuasca is suspected of triggering psychosis and schizophrenia in people with a predisposition to the condition, and there is a lack of safety information for ayahuasca's possible effects on pregnancy and breastfeeding.[36] A 2024 review found that traditional ayahuasca use is generally safe, but higher doses of ayahuasca or higher doses of isolated harmala alkaloids like harmaline may pose risks.[36]

### Overdose

There have been cases of death with dimethyltryptamine (DMT).[39] In terms of extrapolated human lethal dose based on animal studies and human case reports, the lethal dose of ayahuasca relative to a typical recreational or entheogenic dose is estimated to be 50-fold.[39]

### Interactions

See also: Psychedelic drug § Interactions, and Trip killer § Serotonergic psychedelic antidotes

Due to the monoamine oxidase inhibitor (MAOI) activity of ayahuasca, it has a prominent risk of drug interactions with other monoaminergic agents.[40] As an example, combination of ayahuasca with a selective serotonin reuptake inhibitor (SSRI) can result in potentially life-threatening serotonin syndrome.[40]

### Pharmacology

Main articles: Dimethyltryptamine and Harmala alkaloid

#### Pharmacodynamics

Most psychological effects can be accredited to the influx of serotonin caused by the psychoactive combination of DMT with beta-carbolines. Serotonin stimulates a group of G-protein coupled receptors known as 5-HT receptors. Specifically, stimulation of the 5-HT<sub>2A</sub> receptor type is correlated with hallucinogenic effects.[41]

### Dimethyltryptamine

Dimethyltryptamine (DMT) is a naturally occurring, serotonergic hallucinogen found in plants and mammals, classified as a DEA Schedule I substance with no accepted medical use, and under investigation for clinical applications.[4]

Ayahuasca's psychoactive effects stem mainly from DMT, made orally active by MAOIs in the *B. caapi* vine, and its activation of serotonin receptors, particularly 5-HT<sub>2A</sub>, with additional contributions from harmine and harmaline.[3]

### Harmala alkaloids

Main articles: Harmala alkaloid and Substituted  $\beta$ -carboline

While many studies focus on DMT and serotonin agonists, recent research and traditional use highlight the central role of the *B. caapi* vine and its  $\beta$ -carbolines in ayahuasca, noting their potential psychotropic effects through serotonin and benzodiazepine receptor interactions.[3]



Harmala alkaloids like harmaline and harmine are believed to cause hallucinations, vomiting, confusion, and ataxia through central nervous system stimulation and 5-HT receptor binding, similar to DMT.[3]

vte Oral doses and durations of  $\beta$ -carbolines or harmala alkaloids

| Compound          | Chemical name                      | Dose (hallucinogen) | Potency                | Dose (MAOI)         |
|-------------------|------------------------------------|---------------------|------------------------|---------------------|
|                   | Duration                           |                     |                        |                     |
| Harman            | 1-Methyl- $\beta$ -carboline       | >250 mg             | Unknown                | >250 mg             |
|                   | Unknown                            |                     |                        |                     |
| Harmine           | 7-Methoxyharman                    | >300 mg             | $\leq 50\%$ 140–250 mg | 6–8 hours           |
| Harmaline         | 7-Methoxy-3,4-dihydroharman        | 150–400 mg          | 100%                   | 70–150 mg 5–8 hours |
| Tetrahydroharmine | 7-Methoxy-1,2,3,4-tetrahydroharman | $\geq 300$ mg       |                        | $\sim 33\%$         |
|                   | Unknown                            | Unknown             |                        |                     |
| 6-Methoxyharmalan | 6-Methoxy-3,4-dihydroharman        | $\sim 100$ mg       |                        | $\sim 150\%$        |
|                   | Unknown                            | Unknown             |                        |                     |
| 6-MeO-THH         | 6-Methoxy-1,2,3,4-tetrahydroharman | $\geq 100$ mg       | $\sim 50\%$            | Unknown             |
|                   | Unknown                            |                     |                        |                     |
| P. harmala seeds  | –                                  | $\geq 5$ –28 ga     | –                      | 3–5 ga Unknown      |

Footnotes: a = P. harmala seeds in ground form. They contain 2–7% harmala alkaloids, with 1 teaspoon  $\approx 3$  g  $\approx 60$ –180 mg alkaloids; 1 tablespoon  $\approx 9$  g  $\approx 200$ –600 mg alkaloids; and 1 large (OO) gelatin capsule  $\approx 0.7$  g  $\approx 15$ –45 mg alkaloids. For comparison, B. caapi contains 0.05–1.95% (average 0.45%) harmala alkaloids. Note: Harmine and other  $\beta$ -carbolines have also been tested by non-oral routes such as sublingual, subcutaneous injection, intramuscular injection, and intravenous injection.

Refs: See template page.

Harmine

Chemical structure of harmine.

Harmine is a naturally occurring harmala alkaloid with monoamine oxidase-inhibiting under preliminary research for potential anti-HIV properties.[4] It is found in various plants such as Peganum harmala and B. caapi, historically studied for Parkinson's disease and currently in early-phase clinical trials.[4]

Harmine is the primary  $\beta$ -carboline alkaloid in ayahuasca and has been studied for potential therapeutic effects including modulation of astrocytic function, anti-inflammatory properties, influence on neural progenitor proliferation, and possible roles in addiction and depression treatment through mechanisms involving glutamate regulation and BDNF signaling.[3]

Harmaline

Chemical structure of harmaline.

Harmaline is a  $\beta$ -carboline alkaloid derived from the harman skeleton, found in various

organisms including *Peganum* seeds, and acts as a oneirogen.[42]

Harmaline, a harmala alkaloid, has been reported to exhibit a range of pharmacological effects, including hypothermic, vasorelaxant, antimicrobial, antitumoral, antiplatelet, antileishmanial, and antiparasmodial activities, as well as anxiolytic, antidepressant, and hallucinogenic properties at certain doses.[3]

### Tetrahydroharmine

Chemical structure of tetrahydroharmine.

Tetrahydroharmine is a harmala alkaloid found in organisms such as *Daphnia pulex* and *Euglena gracilis*. [43]

Tetrahydroharmine, a component of ayahuasca with weak SSRI properties, has been associated with increased serotonin uptake sites and variable psychoactive effects, with preferences for higher tetrahydroharmine content reported in some ayahuasca-using churches, potentially due to differences in plant composition and preparation methods. [3]

### Pharmacokinetics

The pharmacokinetics of ayahuasca and its components have been studied and described.[44][33][3]

### Pharmacogenomics

Individual polymorphisms of the cytochrome P450-2D6 enzyme, and more over the isolated indoline metabolite from the inhabitation of CPY134a, with a varied rate of gustation due to physiological factors affect the ability of individuals to metabolize harmine.[45]

### History

#### Origins

Archaeological evidence of the use of psychoactive plants in northeastern Amazon dates back to 1500–2000 BCE. Anthropomorphic figurines, snuffing trays and pottery vessels, often adorned with mythological figures and sacred animals, offer a glimpse of the pre-Columbian culture regarding use of the sacred plants, their preparation and ritual consumption [citar naranjo 86].[citation needed] Although several botanical specimens (like tobacco, coca and *Anadenanthera* spp.) were identified among these objects,[46] there is no unequivocal evidence of this date referring directly to ayahuasca. *Banisteriopsis caapi* use is suggested from a pouch containing carved snuffing trays, bone spatulas and other paraphernalia with traces of harmine and DMT, discovered in a cave in southwestern Bolivia in 2008,[47] and chemical traces of harmine in the hair of two mummies found in northern Chile.[48] Both cases are linked to Tiwanaku people, circa 900 CE. There are several reports of oral and nasal use of *Anadenanthera* spp. (rich in bufotenin) ritualistically and therapeutically during labor and infancy, and researchers suggest that addition of *Banisteriopsis* spp. to catalyze its psychoactivity

emerged later, due to contact between different groups of Amazon and Altiplano.[49]

Despite claims by numerous anthropologists and ethnologists, such as Plutarco Naranjo,[50] regarding the millennial usage of ayahuasca, compelling evidence substantiating its pre-Columbian consumption is yet to be firmly established. As articulated by Dennis McKenna:[46]

"No one can say for certain where the practice may have originated, and about all that can be stated with certainty is that it was already spread among numerous indigenous tribes throughout the Amazon Basin by the time Ayahuasca came to the attention of Western ethnographers in the mid-nineteenth century"

The first western references of the ayahuasca beverage dates back to seventeenth century, during the European colonization of the Americas. The earlier report is a letter from Vincente de Valverde to the Holy Office of the Inquisition.[51] Jose Chantre y Herrera still in the seventeenth century, provided the first detailed description of a "devilish potion" cooked from bitter herbs and lianas (called ayaguasca) and its rituals: [52]

"[...] In other nations, they set aside an entire night for divination. For this purpose, they select the most capable house in the vicinity because many people are expected to attend the event. The diviner hangs his bed in the middle and places an infernal potion, known as ayahuasca, by his side, which is particularly effective at altering one's senses. They prepare a brew from bitter vines or herbs, which, when boiled sufficiently, must become quite potent. Since it's so strong at altering one's judgment in small quantities, the precaution is not excessive, and it fits into two small pots. The witch doctor drinks a very small amount each time and knows well how many times he can sample the brew without losing his senses to properly conduct the ritual and lead the choir".

Another report produced in 1737 by the missionary Pablo Maroni, describes the use of a psychoactive liana called ayahuasca for divination in the Napo River, Ecuador:[53]

#### Ayahuasca cooking

"For divination, they use a beverage, some of white datura flowers, which they also call Campana due to its shape, and others from a vine commonly known as Ayahuasca, both highly effective at numbing the senses and even at taking one's life if taken in excess. They also occasionally use these substances for the treatment of common illnesses, especially headaches. So, the person who wants to divine drinks the chosen substance with certain rituals, and while deprived of their senses from the mouth downwards, to prevent the strength of the plant from harming them, they remain in this state for many hours and sometimes even two or three days until the effects run their course, and the intoxication subsides. After this, they reflect on what their imagination revealed, which occasionally remains with them for delirium. This is what they consider accomplished and propagate as an oracle."

Latter reports were produced by Juan Magnin in 1740, describing ayahuasca use as a medicinal plant by the Jivaroan peoples (called ayahuessa)[54] and by Franz Xaver Veigl in 1768, that reports about several "dangerous plants", including a bitter liana used for precognition and sorcery.[55] All these reports were written in context of Jesuit missions in South America, specially the Mainas missions,[56] in Latin and sent only to Rome, so their audience wasn't very large and they were promptly lost in the archives. For this reason, ayahuasca didn't receive interest for the entire subsequent century.[57]

#### Early academic research

In academic discourse, the initial mention of ayahuasca dates back to Manuel Villavicencio's 1858 book, "Geografía de la República del Ecuador." This work vividly delineates the employment and rituals involving ayahuasca by the Jivaro people.[58] Concurrently, Richard Spruce embarked on an Amazonian expedition in 1852 to collect and classify previously unidentified botanical specimens. During this journey, Spruce encountered and documented *Banisteriopsis caapi* (at time named *Banisteria caapi*) and observed an ayahuasca ceremony among the Tucano community situated along the Vaupés River. Subsequently, Spruce uncovered the usage and cultivation of *B. caapi* among various indigenous groups dispersed across the Amazon and Orinoco basins, like the Guahibo and Sápara. These multifarious encounters, together with Spruce's personal accounts of subjective ayahuasca experiences, were collated in his work, "Notes of a Botanist On The Amazon and Andes".[59] By the end of the century, other explorers and anthropologists contributed more extensive documentation concerning ayahuasca, notably the Theodor Koch-Grünberg's documents about Tucano and Arecuna's rituals and ceremonies,[60][61] Stradelli's first-hand reports of ayahuasca rituals and mythology along the Jurupari and Vaupés[62] and Alfred Simson's first description of admixture of several ingredients in the making of ayahuasca in Putumayo region, published in 1886.[63]

In 1905, Rafael Zerda Bayón named the active extract of ayahuasca as telepathine, a name latter used by the Colombian chemist Guillermo Fischer Cárdenas when he isolated the substance in 1932.[64] Contemporaneously, Lewin[65] and Gunn[66] were independently studying the properties of the banisterine, extracted of the *B. caapi*, and its effects on animal models.[67] Further clinical trials were being conducted, exploring the effects of banisterine on Parkinson's disease.[68][69] Later it was found that both telepathine and banisterine are the same substance, identical to a chemical already isolated from *Peganum harmala* and given the name Harmine.[70]

#### Shamanism, mestizos, and vegetalistas

Researchers like Peter Gow and Brabec de Mori argue that ayahuasca use indeed developed alongside the Jesuit missions after the 17th century. By examining the *ícaros* (ayahuasca-related healing chants), they found that the chants are always sung in Quechua (a lingua franca along the Jesuit and Franciscan missions in the region), no matter the linguistic background of the group, with similar language structures between different *ícaros* that are markedly different from other indigenous songs. Moreover, often

the cosmology of ayahuasca often mirrors the Catholicism, with particular similarities in the belief that ayahuasca is thought to be the body of ayahuascamama that is imbibed as part of the ritual, like wine and bread are taken as being the body and blood of Jesus Christ during Christian Eucharist. Brabec de Mori called this "Christian camouflage" and suggested that rather than being a way for disguising the ayahuasca ritual, it suggests that practice evolved entirely within these contexts.[71][56]

Indeed, the colonial processes in Western Amazon are intrinsically related with the development of ayahuasca use in the last three centuries, as it promoted a deep reshape in traditional ways of life in the region. Many indigenous groups moved into the Missions, seeking protection from death and slavery promoted by the Bandeiras, inter-tribal violence, starvation and disease (smallpox). This movement resulted in an intense cultural exchange and resulted in the formation of mestizos (in Spanish) or caboclos (in Portuguese), a social category formed by people with mixture of European and native ancestry, who were an important part of the economy and culture of the region.[72] According to Peter Gow, the ayahuasca shamanism (the use of ayahuasca by a trained shaman to diagnose and cure illnesses) was developed by these mestizos in the processes of colonial transformation.[71] The Amazon rubber cycles (1879–1912 and 1945–1945) sped up these transformations, due to slavery, genocide and brutality against indigenous populations and large migratory movements, specially from the Brazilian Northeast Region as a workforce for the rubber plantations. The mestizo practices became deeply intertwined with the culture of rubber workers, called caucheros (in Spanish) or seringueiros (in Portuguese). Ayahuasca use with therapeutic goals is the main result of this Trans-cultural diffusion, with some practitioners pointing the caucheros as the main responsible for using ayahuasca to cure all sort of ailments of the body, mind and soul, with even some regions using the term Yerba de Cauchero ("rubber-worker herb"). As a result, the ayahuasca shamans in urban areas and mestizo settlements, specially in the regions of Iquitos and Pucallpa (in Peru), became the vegetalistas, folk healers who are said to gain all their knowledge from the plants and the spirits bound to it.[73]

So the vegetalista movement was a heterogeneous mixture of Western Amazon (mestizo shamanic practices and cauchero culture) and Andean elements (shaped by other migratory movements, like those originated from Cuzco through Urubamba Valley and from western Ecuador), influenced by Christian aspects derived from the Jesuit missions, as reflected by the mythology, rituals and moral codes related to vegetalista ayahuasca use.[73]

#### Ayahuasca religions

Although mestizo, vegetalista and indigenous ayahuasca use was part of a longer tradition, these several configurations of mestizo vegetalismo were not isolated phenomena. In the end of the nineteenth century, several messianic/millennialist cults sparkled across semi-urban areas across the entire Amazon region, merging different elements of indigenous and mestizo folk culture with Catholicism, Spiritism and Protestantism.[73][74] In this context, the use of ayahuasca will take form of urban,

organized non-indigenous religions in outskirts of main cities of northwest of Brazil, (along the basins of Madeira, Juruá and Purus River)[75] within the cauchero/seringueiro cultural complex, resignifying and adapting both the vegetalista and mestizo shamanism to new urban formations, unifying essential elements to building a cosmology for the new emerging cult/faith, merging with elements of folk Catholicism, African-Brazilian religions and Kardecist spiritism. These new cults arise from charismatic leaderships, often messianic and prophetic, who came from rural areas after migration movements, sometimes called ayahuasqueiros, in semi-urban communities across the borders of Brazil, Bolívia and Peru (a region that will later form the state of Acre).[72] This new configuration of these belief systems is referred by Goulart as tradição religiosa ayahuasqueira urbana amazônica ("urban-amazonian ayahuasqueiro religious tradition")[76] or campo ayahuasqueiro brasileiro ("brazilian ayahuasqueiro field") by Labate,[77] emerging as three main structured religions, the Santo Daime and Barquinha, in Rio Branco and the União do Vegetal (UDV) in Porto Velho, three denominations that, notwithstanding shared characteristics besides ayahuasca utilization, have several particularities regarding its practices, conceptions and processes building social legitimacy and relationships with Brazilian government, media, science and other society stances.[78] Since the latter half of twentieth century, the ayahuasca religious expanded to other parts of Brazil and several countries in the world, notably in the West.[79]

#### Modern use

Beat writer William S. Burroughs read a paper by Richard Evans Schultes on the subject and while traveling through South America in the early 1950s sought out ayahuasca in the hopes that it could relieve or cure opiate addiction (see The Yage Letters). Ayahuasca became more widely known when the McKenna brothers published their experience in the Amazon in *True Hallucinations*. Dennis McKenna later studied pharmacology, botany, and chemistry of ayahuasca and oo-koo-he, which became the subject of his master's thesis.

Richard Evans Schultes allowed Claudio Naranjo to make a special journey by canoe up the Amazon River to study ayahuasca with the South American Indigenous peoples. He brought back samples of the beverage and published the first scientific description of the effects of its active alkaloids.[80]

In recent years, the brew has been popularized by Wade Davis (*One River*), English novelist Martin Goodman in *I Was Carlos Castaneda*,[81] Chilean novelist Isabel Allende,[82] writer Kira Salak,[83][84] shaman Hamilton Southey,[85][27][86] author Jeremy Narby (*The Cosmic Serpent*), author Jay Griffiths (*Wild: An Elemental Journey*), American novelist Steven Peck, radio personality Robin Quivers,[87][unreliable source?], writer Paul Theroux (*Figures in a Landscape: People and Places*),[88] and NFL quarterback Aaron Rodgers.[89]

#### Society and culture

##### Etymology

Ayahuasca is the hispanicized spelling (i.e., spelled according to Spanish orthography) of a word that originates from the Quechuan languages, which are spoken in the Andean states of Ecuador, Bolivia, Peru, and Colombia. Speakers of Quechuan languages who use modern Quechuan orthography spell it *ayawaska*.<sup>[90]</sup> The word refers both to the liana *Banisteriopsis caapi*, and to the brew prepared from it. In the Quechuan languages, *aya* means 'spirit, soul', or 'corpse, dead body', and *waska* means 'rope' or 'woody vine, liana'.<sup>[91]</sup> The word *ayahuasca* has been variously translated as 'liana of the soul', 'liana of the dead', and 'spirit liana'.<sup>[92]</sup> In the cosmovision of its users, the *ayahuasca* is the vine that allows the spirit to wander detached from the body, entering the spiritual world, otherwise forbidden for the alive.

### Common names

Although *ayahuasca* is the most widely used term in Peru, Bolivia, Ecuador and Brazil, the brew is known by many names throughout northern South America:

#### hoasca or oasca in Brazil

yagé (or yajé, from the Cofán language or iagê in Portuguese). Relatively widespread use in Andean and Amazonian regions throughout the border areas of Colombia, Peru, Ecuador and Brazil.<sup>[93]</sup> The Cofán people also use the word *oofa*.

*caapi* (or *kahpi/gahpi* in Tupi–Guarani language[which?] or \**kaapi* in proto-Arawak language), used to address both the brew and the *B. caapi* itself. Meaning "weed" or "thin leaf", it was the word utilized by Spruce for naming the liana.<sup>[94]</sup>

*pinde* (or *pindê/pilde*), used by the Colorado people<sup>[95]</sup>

*patem* (or *nátema*), from the Chicham languages[which?]<sup>[96][97]</sup>

*shori, mii* (or *miiyagi*) and *uni*, from the Yaminawa language<sup>[98][99]</sup>

*nishi cobin*, from the Shipibo language<sup>[100]</sup>

*nixi pae, shuri, ondi, rambi* and *rame*, from the Kashinawa language<sup>[101][102][103]</sup>

*kaji, kadana* and *kadanapira*, used by the Tucano people<sup>[104]</sup>

*kamarampi* (or *kamalampi*) and *hananeroca*, from the Arawakan languages[which?]<sup>[105]</sup>

*bakko*, from Bora-Muinane languages[which?]<sup>[106]</sup>

*jono pase*, used by Ese'Ejja people<sup>[107]</sup>

*uipa*, from Guahibo language<sup>[108]</sup>

*napa* (or *nepe/nepi*), used by Tsáchila people<sup>[109]</sup>

*Biaxije*, from Kamëntšá language<sup>[110]</sup>

*Cipó* ("liana") or *Vegetal*, in Portuguese language, used by União do Vegetal church members

*Daime* or *Santo Daime*, meaning "give me" in Portuguese, the term was coined by Santo Daime's founder Mestre Irineu in the 1940s, from a prayer *dai-me alegria, dai-me resistência* ("give me happiness, give me strength"). Daime members also uses the words *Luz* ("light") or *Santa Luz* ("holy light")

Some nomenclature are created by the cultural and symbolic signification of *ayahuasca*, with names like *planta professora* ("plant teacher"), *professor dos professores* ("teacher of the teachers"), *sagrada medicina* ("holy medicine") or *la purga* ("the purge").

Other names in the Western world

In the last decades, two new important terminologies emerged. Both are commonly used in the Western world in neoshamanic, recreative or pharmaceutical contexts to address ayahuasca-like substances created without the traditional botanical species, due to it being expensive and/or hard to find in these countries. These concepts are surrounded by some controversies involving ethnobotany, patents, commodification and biopiracy:[111][112][113]

Anahuasca (ayahuasca analogue or variants). A term usually used to refer to the ayahuasca produced with other plant species as sources of DMT (e.g., *Mimosa hostilis*) or  $\beta$ -carbolines (e.g., *Peganum harmala*).[114]

Pharmahuasca (pharmaceutical ayahuasca). This indicates the pills produced from freebase DMT, synthetic harmaline, MAOI medications (such as moclobemide) and other isolated or purified compounds or extracts.[115]

Legal status

Main article: Legal status of ayahuasca by country

Internationally, DMT is a Schedule I drug under the Convention on Psychotropic Substances. The Commentary on the Convention on Psychotropic Substances notes, however, that the plants containing it are not subject to international control:[116]

The cultivation of plants from which psychotropic substances are obtained is not controlled by the Vienna Convention... Neither the crown (fruit, mescal button) of the Peyote cactus nor the roots of the plant *Mimosa hostilis* nor *Psilocybe* mushrooms themselves are included in Schedule I, but only their respective principals, mescaline, DMT, and psilocin.

In Peru, ayahuasca is legal and formally protected as part of the country's cultural heritage. When ratifying the 1971 Convention on Psychotropic Substances, Peru entered a reservation to exclude Ayahuasca and San Pedro from international control, citing their traditional ritual use by Amazonian peoples (United Nations Treaty Collection, 1971).[117] This position was reinforced on 24 June 2008, when the Instituto Nacional de Cultura declared the traditional knowledge and ceremonial use of Ayahuasca by Indigenous communities as Patrimonio Cultural de la Nación (Cultural Heritage of the Nation).[118]

A fax from the Secretary of the International Narcotics Control Board (INCB) to the Netherlands Ministry of Public Health sent in 2001 goes on to state that "Consequently, preparations (e.g. decoctions) made of these plants, including ayahuasca, are not under international control and, therefore, not subject to any of the articles of the 1971 Convention." [119]

Despite the INCB's 2001 affirmation that ayahuasca is not subject to drug control by international convention, in its 2010 Annual Report the Board recommended that governments consider controlling (i.e. criminalizing) ayahuasca at the national level. This recommendation by the INCB has been criticized as an attempt by the Board to overstep its legitimate mandate and as establishing a reason for governments to violate



the human rights (i.e., religious freedom) of ceremonial ayahuasca drinkers.[120]

Under American federal law, DMT is a Schedule I drug that is illegal to possess or consume; however, certain religious groups have been legally permitted to consume ayahuasca.[121] A court case allowing the União do Vegetal to import and use the tea for religious purposes in the United States, *Gonzales v. O Centro Espírita Beneficente União do Vegetal*, was heard by the U.S. Supreme Court on November 1, 2005; the decision, released February 21, 2006, allows the UDV to use the tea in its ceremonies pursuant to the Religious Freedom Restoration Act. In a similar case in Ashland, Oregon-based Santo Daime church sued for their right to import and consume ayahuasca tea. In March 2009, U.S. District Court Judge Panner ruled in favor of the Santo Daime, acknowledging its protection from prosecution under the Religious Freedom Restoration Act.[122]

In 2017 the Santo Daime Church Céu do Montréal in Canada received religious exemption to use ayahuasca as a sacrament in their rituals.[123]

Religious use in Brazil was legalized after two official inquiries into the tea in the mid-1980s, which concluded that ayahuasca is not a recreational drug and has valid spiritual uses.[124]

In France, Santo Daime won a court case allowing them to use the tea in early 2005; however, they were not allowed an exception for religious purposes, but rather for the simple reason that they did not perform chemical extractions to end up with pure DMT and harmala and the plants used were not scheduled.[125] Four months after the court victory, the common ingredients of ayahuasca as well as harmala were declared stupéfiants, or narcotic schedule I substances, making the tea and its ingredients illegal to use or possess.[126]

In June 2019, Oakland, California, decriminalized natural entheogens. The City Council passed the resolution in a unanimous vote, ending the investigation and imposition of criminal penalties for use and possession of entheogens derived from plants or fungi. The resolution states: "Practices with Entheogenic Plants have long existed and have been considered to be sacred to human cultures and human interrelationships with nature for thousands of years, and continue to be enhanced and improved to this day by religious and spiritual leaders, practicing professionals, mentors, and healers throughout the world, many of whom have been forced underground." [127] In January 2020, Santa Cruz, California, and in September 2020, Ann Arbor, Michigan, decriminalized natural entheogens.[128][129][130]

#### Intellectual property issues

Ayahuasca has stirred debate regarding intellectual property protection of traditional knowledge.[131] In 1986 the US Patent and Trademarks Office (PTO) allowed the granting of a patent on the ayahuasca vine *B. caapi*. It allowed this patent based on the assumption that ayahuasca's properties had not been previously described in writing.

Several public interest groups, including the Coordinating Body of Indigenous Organizations of the Amazon Basin (COICA) and the Coalition for Amazonian Peoples and Their Environment (Amazon Coalition) objected. In 1999 they brought a legal challenge to this patent which had granted a private US citizen "ownership" of the knowledge of a plant that is well-known and sacred to many Indigenous peoples of the Amazon, and used by them in religious and healing ceremonies.[132]

Later that year the PTO issued a decision rejecting the patent, on the basis that the petitioners' arguments that the plant was not "distinctive or novel" were valid; however, the decision did not acknowledge the argument that the plant's religious or cultural values prohibited a patent. In 2001, after an appeal by the patent holder, the US Patent Office reinstated the patent, albeit to only a specific plant and its asexually reproduced offspring. The law at the time did not allow a third party such as COICA to participate in that part of the reexamination process. The patent, held by American entrepreneur Loren Miller, expired in 2003.[133]

#### Research

See also: Psychedelic therapy

There are potential antidepressant and anxiolytic effects of ayahuasca.[134][135][2]

Ayahuasca has also been studied for the treatment of addictions and shown to be effective, with lower Addiction Severity Index scores seen in users of ayahuasca compared to controls.[136][137][138][2] Ayahuasca users have also been seen to consume less alcohol.[139]

Ayahuasca may affect the blunted salivary cortisol awakening response in people with treatment-resistant depression.[140]

See also

List of substances used in rituals

Andrew Gallimore

Changa

Dimethyltryptamine/harmine

Dimethyltryptamine/ $\beta$ -carboline

German Amazon-Jary-Expedition (1935–1937)

Ibogaine

Icaro

Kambo (drug)

Yachay

Notes

Pronounced as /ˌaɪ(j)əˈwæskə/ in the UK and /ˌaɪ(j)əˈwɑːskə/ in the US. Also occasionally known in English as ayaguasca (Spanish-derived), aioasca (Brazilian Portuguese-derived), or as yagé, pronounced /jɑhe ɪ/ or /jæhe /. Etymologically, all forms but yagé descend from the compound Quechua word ayawaska, from aya (transl. soul) and waska (transl. vine). For more names for ayahuasca, see § Etymology.

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Ayahuasca - Erowid

What is Ayahuasca? - Tripsitter

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Biofield Tuning | A Sound Approach to Health & Wellbeing

Biofield Tuning

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Founded by Eileen Day McKusick, Biofield Tuning is a sound therapy method that provides targeted nervous system relaxation and can alleviate a wide range of ...

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What is the Biofield tuning treatment?

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The Unleashed Heart

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What Is Biofield Tuning? A Guide to Sound Healing Therapy

therawellness.us

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Biofield Tuning is a form of vibrational sound therapy that uses tuning forks to detect and correct energetic imbalances in the human biofield.

What is Biofield Tuning? Tune My Biofield in Austin Texas

tunemybiofield.com

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Biofield Tuning is a unique, non-medical method of applied therapeutic sound to induce targeted change. Relaxing, expanding, clarifying and energizing.  
Premium Tuning Forks & Toolkits for Sound Healing

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Our unweighted and weighted tuning forks & kits are precision crafted in the USA to be more durable. Shop sound healing kits at Biofield Tuning Store.

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One 2 One Physical Therapy

<https://one2onephysicaltherapy.com> › Therapies

Using specific tones generated through tuning forks, this therapy clears congestion and stress in your energy field, also known as your biofield.

Biofield Tuning in Salt Lake City - Align Integration & Movement

[alignforhealth.com](http://alignforhealth.com)

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Biofield Tuning is a sound therapy method that reverses the effects of stress and targets nervous system relaxation.

What Is Biofield Tuning?

Kripalu

<https://kripalu.org> › living-kripalu › what-biofield-tuning

Practitioner Eileen Day McKusick explains how she uses tuning forks to heal bodies that are out of tune due to the stressors of daily life.

Tuning Fork Therapy - Topics - Meinl Sonic ...

Meinl Sonic Energy

<https://meinlsonicenergy.com> › topics › tuning-fork-the...

Tuning Fork Therapy is a very gentle, yet powerful modality to treat the body and mind and restore inner balance and health.

Missing: aka biofield

Biofield Tuning: How Sound and Vibration Heal the Body

Taos Bakes

<https://www.taosbakes.com> › blogs › news › biofield-tu...

Tuning Fork Therapy: Applies targeted frequencies to energy centers or meridians.

Singing Bowls & Gongs: Generate rich, layered sounds that deeply relax the ...

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Tune My Biofield

5.0(2) · Alternative medicine practitioner

Austin, TX · (512) 797-0976

Closed · Opens 9 AM Mon

Their website mentions therapeutic and tuning forks

Website

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Biofield Tuning NP

5.0(12) · Health consultant

"I loved my first session and feel great afterwards."

Website

Biofield Tuning MPLS

5.0(16) · Holistic medicine practitioner

Minneapolis, MN · (651) 269-7911

"I felt physical and emotional relief after just one session."

Website

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AI Overview

Tai chi and acupuncture are complementary Traditional Chinese Medicine (TCM) practices that focus on balancing the body's vital energy (Qi), with Tai chi using gentle, flowing movements as "meditation in motion" to improve strength, balance, and stress, while acupuncture uses thin needles to stimulate specific points to unblock energy flow, both offering significant benefits for chronic pain, mood, and overall wellness, often used together for enhanced healing.

Tai Chi (Taiji)

What it is: A low-impact, meditative martial art with slow, graceful movements, deep breathing, and focused awareness.

Benefits: Improves balance, strength, flexibility, reduces stress, and enhances mood.

Mechanism: Promotes the smooth flow of Qi through choreographed movements, acting as "moving meditation".

Acupuncture

What it is: A technique involving inserting fine needles into specific body points (acupoints) to regulate Qi.

Benefits: Effective for chronic pain (back, neck, osteoarthritis, headaches) and fibromyalgia, notes National Institutes of Health.

Mechanism: Stimulates neurochemicals and blocks pain signals, according to National Institutes of Health.

The Connection & Combined Benefits

Shared Goal: Both aim to harmonize the body's internal systems and balance Qi.

Synergy: They work together to elicit the relaxation response, counteracting stress and promoting healing, notes Psychiatry Online.

Integrative Care: Often combined in TCM for conditions like chronic pain, as seen in research by Lippincott and National Institutes of Health.

Accessibility: Both are affordable, accessible, and integrative therapies that complement



conventional medicine, says UT Health San Antonio.  
Acupuncture, Tai Chi and Traditional Chinese Medicine ...  
Feb 7, 2021 — by um big companies who develop and sell these products and so there might be fewer. resources um available to support ...

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·Stanford Pain Medicine

4m  
Qigong and Acupuncture  
Qigong (or Chi Kung) has a much earlier origin than Tai Chi. Qigong, which focuses on the cultivation and balance of Qi, has been ...

American Academy of Medical Acupuncture

What is T'ai Chi? | The University of Kansas Health System  
Qigong means "breathing exercise" or "life energy exercise," and can include sitting meditations or gentle moving meditations. Whe...

The University of Kansas Health System

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The Center for Classical Acupuncture and Massage Therapy

4.8(6) · Acupuncture clinic  
115 E C Ave · (501) 812-4500  
Closed · Opens 9:30 AM Tue

Website

Directions

Martin Eisele Jr, LAC

5.0(3) · Acupuncturist  
Little Rock, AR · (501) 663-3461

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Evergreen Acupuncture And Oriental Medic

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National Institutes of Health (.gov)

<https://pubmed.ncbi.nlm.nih.gov> › ...

by WW Tao · 2016 · Cited by 268 — acupuncture produced small-to-large effects on adverse symptoms including pain, fatigue, sleep disturbance, Tai Chi improved vital capacity of ...

The healing art of tai chi

Mayo Clinic Press

<https://mcpress.mayoclinic.org> › Living Well

Oct 4, 2024 — Tai chi is practiced with the intention to strengthen and relax the body and mind. “These practices are ideal for health and healing.

Tai Chi and Acupuncture, A Harmonious Wellness Journey

Healing Light Family Acupuncture

<https://healinglightfamilyacupuncture.com> › tai-chi-and...

Tai Chi's gentle movements help to cultivate a sense of inner calm and focus, which can amplify the stress-relieving effects of acupuncture.

Science in motion: How tai chi and other traditional ...

UT Health San Antonio

<https://news.uthscsa.edu> › science-in-motion-how-tai-ch...

Oct 7, 2025 — Ancient traditional practices like yoga, acupuncture, and meditation have all shown measurable benefits in areas ranging from chronic pain ...

Acupuncture combined with Tai Chi in the treatment of a...

Lippincott

<https://journals.lww.com> › md-journal › fulltext › acup...

by X Bai · 2025 — Acupuncture combined with Tai Chi effectively alleviates pain, promotes functional recovery, and accelerates fracture healing in patients with ...

Inner Flow Tai Chi - Little Rock - Evergreen Acupuncture

evergreenhealth.net

<https://evergreenhealth.net> › tai-chi

Welcome to Inner Flow Tai Chi at Unity Martial Arts! Our Tai Chi classes have a meditative atmosphere. 12:00pm – 1:00pm #104 Little Rock, AR 72202

The Health Benefits of Tai Chi

Harvard Health

<https://www.health.harvard.edu> › staying-healthy › the-...

May 24, 2022 — Tai chi is gentle and not strenuous. Benefits have been shown to include a positive effect on muscle strength, flexibility, and balance, ...  
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AI Overview

Reiki Energy Healing: A Great Addition to your Wellness ...

Reiki (pronounced "ray-kee") is a Japanese energy healing technique where a practitioner channels "universal life force energy" through their hands to support a recipient's natural healing, promoting relaxation, stress reduction, pain relief, and emotional balance, often using gentle touch or distance healing, though scientific evidence for specific medical claims remains inconsistent, with many studies suggesting benefits for anxiety and well-being alongside conventional treatments.

What it is

Energy Healing: A practice based on the belief that a life force energy (Reiki) flows through all beings, and disruptions can lead to illness.

Japanese Origin: Rei means universal, ki means life force energy.

Complementary Therapy: Used alongside medical treatments to support holistic wellness, not replace them.

How it works (Techniques)

Gentle Touch: Practitioners place their hands lightly on or just above the body in specific positions, often starting at the head and moving down.

Hands-On Healing: Focuses on areas of discomfort or generally across the body to balance energy.

Distance Healing: Can be administered remotely through focused intent.

Components: Includes techniques, mantras, symbols, spiritual development, and initiation (Reiju).

Potential Benefits (Reported)

Deep relaxation and stress relief

Reduced anxiety and depression

Pain reduction, especially in cancer patients and for chronic pain

Improved quality of life

Enhanced spiritual connection and personal growth

Scientific Viewpoint

Inconsistent Evidence: Clinical studies show promising results for stress and anxiety but are often considered methodologically weak or inconsistent.

Pseudoscience Allegations: Some in the scientific community view it as pseudoscience due to a lack of a plausible biological mechanism, though supporters argue traditional trials miss holistic effects.

Who can receive Reiki

Adults, children, babies, and animals.

Can be used with other medications and treatments.

The Health Benefits of Reiki

Mar 22, 2023 — hi my name is Frannie. i am a level one practitioner Reiki practitioner  
um Reiki is an ancient Japanese traditional he...

YouTube

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1:56

What Is Reiki? Benefits and Risks - Healthline

Jun 21, 2018 — What does science say about the benefits of reiki? \* A 2024 systematic

review of five studies in cancer patients indic...

Healthline

Reiki - Wikipedia

Reiki is used as an illustrative example of pseudoscience in scholarly texts and academic journal articles. The marketing of reiki...

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[https://en.wikipedia.org › wiki › Reiki](https://en.wikipedia.org/wiki/Reiki)

Reiki [a] is a pseudoscientific form of energy healing, a type of alternative medicine created by Mikao Usui in Japan during the 1920s.

Mikao Usui

Chujiro Hayashi

Hawayo Takata

People also ask

What is Reiki and how does it work?

What is the drawback of Reiki?

Is Reiki scientifically proven?

Can I do Reiki on myself?

Feedback

Businesses

Reiki By Debora, Let Tha HeaLin Begin

5.0(75) · Health consultant

Little Rock, AR

Closed · Opens 9 AM Mon · (501) 247-2302

"It was my first Reiki session and I felt amazing afterwards."

Website

Directions

The Floating Lotus

4.9(239) · Spa

15+ years in business · Little Rock, AR

Closed · Opens 10 AM Mon · (501) 361-2518

"I got what I needed fully which was relaxation and stress release!"

Schedule

Website

Directions

CrossRoads Holistic Healing

5.0(19) · Reiki therapist

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"She explained what Reiki can do for you and I was able to relax into it."

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Reiki Healing: What It Is and How It Works

YouTube · Medical Centric Podcast

Dec 12, 2024

YouTube · Medical Centric Podcast

3:35

Reiki is a holistic healing practice that involves channeling universal energy to promote physical, emotional, and spiritual well-being.

5-minute refresher on how to practice self Reiki

YouTube · University of Florida Emergency Medicine Research

Mar 23, 2023

YouTube · University of Florida Emergency Medicine Research

5:29

I'm Tammy Anderson and I'm going to be demonstrating a self Reiki session.

The Health Benefits of Reiki

YouTube · Jamaica Hospital Medical Center

Mar 23, 2023

YouTube · Jamaica Hospital Medical Center

1:56

Reiki, an ancient Japanese healing technique, reduces anxiety, eases depression, and promotes well-being.

Feedback

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Reiki: How Energy Healing Works

Cleveland Clinic Health Essentials

<https://health.clevelandclinic.org/reiki>

Jul 16, 2024 — Reiki is an energy healing practice that may bring on a state of calmness and relaxation. It shouldn't be used as a replacement for ...

Reiki - an overview | ScienceDirect Topics

ScienceDirect.com

<https://www.sciencedirect.com/medicine-and-dentistry>

Reiki (pronounced "ray-key") is an ancient Buddhist practice of manual healing therapy

that was rediscovered in Japan by Mikao Usui in the mid 1800s.

Reiki

Reiki.org

<https://www.reiki.org>

Reiki is a Japanese technique for stress reduction and relaxation that also promotes healing. It's administered by laying on hands and can be easily learned by ...

Reiki healing

William Rand

Learning Reiki

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What is Reiki? Energy Healing and Chakra Work — Lisa Kern

Reiki & Mindset Coaching

Blog: Reiki and the Chakras - School of Social Work - Wayne ...

Blog: Reiki and the Chakras - School of Social Work - Wayne ...

Wayne State University School of Social Work

Reiki | Telehealth and Online Therapy | Driftwood, TX

Reiki | Telehealth and Online Therapy | Driftwood, TX

Lori Russell-Siemer

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Reiki

Better Health Channel

<https://www.betterhealth.vic.gov.au> › health › reiki

Reiki, pronounced 'ray-key', is a Japanese form of therapy that aims to increase energy levels and promote relaxation and wellbeing.

What is Reiki?

Reiki.org

<https://www.reiki.org> › faqs › what-reiki

Reiki is a Japanese technique for stress reduction and relaxation that also promotes healing. It is administered by laying on hands.

Reiki | NCCIH

National Center for Complementary and Integrative Health (.gov)

<https://www.nccih.nih.gov> › Health Information

Reiki is a complementary health approach in which practitioners place their hands lightly on or just above a person, with the goal of directing energy.

Reiki



Kaiser Permanente

<https://healthy.kaiserpermanente.org/he/reiki/ty6223spec>

Reiki means "universal life energy." It's an ancient healing method that manipulates energy flow in the body. People use reiki to decrease pain, ease muscle ...

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This article is about the Japanese pseudoscientific healing practice. For the era, see Reiki (era).

A reiki session in progress

Part of a series on

Alternative medicine

General information

Fringe medicine and science

AcupressureAcupunctureAlkaline dietAnthroposophic medicineApitherapyApplied kinesiologyAromatherapyAssociation for Research and EnlightenmentAuriculotherapyBates methodBiological terrain assessmentBlack salveBodyworkBone-settingBowen techniqueBreathworkFake COVID-19 treatmentsCamel urineCancer treatmentsCharcoal cleanseChiropractic Chiropractic treatment techniquesVertebral subluxationChristian ScienceChromotherapyColloidal silverColon cleansing Coffee enemaColorpunctureConversion therapyCraniosacral therapyCrystal healingCupping therapyDental amalgam controversyDetoxification Foot detoxDry needlingEar candlingEnergy medicine CorreactologyEsoteric energyReikiTherapeutic touchEstrogen dominanceFabunan Antiviral InjectionFacilitated communicationFasciaBlasterFeldenkrais methodFunctional medicineHair analysisHolistic dentistryHologram braceletHomeopathy Bach flower remediesHydrotherapyHypnotherapyIonized jewelryIridologyJilly JuiceLightning ProcessLymphotherapyMagnet therapyManual therapyManual lymphatic drainageMedical intuitiveMegavitamin therapyMesmerismMind–body interventionsMMSMyofascial releaseNAETNaturopathyOil pullingOrgoneOrthomolecular medicineOrthopathyOsteomyologyOsteopathyOzone therapyParapsychologyPhrenologyPostural IntegrationPsychic surgeryPsychodermatologyQuantum healingRadionicsRapid prompting methodReflexologyRBOPRolfingScientific racismThetaHealingThomsonianismThought Field TherapyUrophagiaVaginal steamingVegetotherapyVision therapyVitalismYoung blood transfusionZero balancing

Controversies

Classifications

Traditional medicine

Alternative diagnoses

vte

Reiki[a] is a pseudoscientific form of energy healing, a type of alternative medicine created by Mikao Usui in Japan during the 1920s.[1][2] Reiki practitioners use a technique called palm healing or hands-on healing through which, according to practitioners, a "universal energy" is transferred through the palms of the practitioner to the client, to encourage emotional or physical healing. It is based on qi ("chi"), which

practitioners say is a universal life force, although there is no empirical evidence that such a life force exists.[3][4]

Reiki is used as an illustrative example of pseudoscience in scholarly texts and academic journal articles.[3][4] The marketing of reiki has been described as "fraudulent misrepresentation",[4] and itself as a "nonsensical method",[5] with a recommendation that the American government agency NCCIH should stop funding reiki research because it "has no substantiated health value and lacks a scientifically plausible rationale".[6]

Clinical research does not show reiki to be effective as a treatment for any medical condition, including cancer,[7][8] diabetic neuropathy,[9] anxiety or depression.[10] There is no proof of the effectiveness of reiki therapy compared to placebo. Studies reporting positive effects have had methodological flaws.[3]

### Etymology

According to the Oxford English Dictionary, the English alternative medicine word reiki comes from Japanese reiki (霊気) "mysterious atmosphere, miraculous sign", combining rei "universal" and ki "vital energy"—the Sino-Japanese reading of Chinese língqì (靈氣) "numinous atmosphere".[11]

### Conceptual basis

Further information: Vitalism and Qi

Reiki's teachings and adherents claim that qi is a physiological force that can be manipulated to treat a disease or condition. There is no evidence that qi exists.[3] Reiki is classified as a pseudoscientific practice based on confusion between metaphysical and empirical concepts.[12]

Most research on reiki is poorly designed and prone to bias. There is no reliable empirical evidence that reiki is helpful for treating any medical condition,[3][7][8] although some physicians have said it might help promote feelings of general well-being.[8] In 2011, William T. Jarvis of The National Council Against Health Fraud stated there "is no evidence that clinical reiki's effects are due to anything other than suggestion" or the placebo effect.[13]

The 22 April 2014 Skeptoid podcast episode entitled "Your Body's Alleged Energy Fields" relates a reiki practitioner's report of what was happening as she passed her hands over a subject's body:

What we'll be looking for here, within John's auric field, is any areas of intense heat, unusual coldness, a repelling energy, a dense energy, a magnetizing energy, tingling sensations, or actually the body attracting the hands into that area where it needs the reiki energy, and balancing of John's qi.[14]

### Technique

A session usually lasts for approximately one hour. A "Level 1" practitioner places their hand or hands on or near various parts of the body for several minutes. During this time, a vital energy is meant to flow from the practitioner into the client's body.[7] "Level 2" practitioners alternatively may offer their services at a distance with no skin contact.[7]

#### Research and critical evaluation

Reiki is used as an illustrative example of pseudoscience in scholarly texts and academic journal articles.[12][15][16][17] David Gorski writes that reiki vies with homeopathy to be the "one quackery that rules them all" because of its "sheer ridiculousness and disconnect from reality".[18] Jann Bellamy, a lawyer and critic of alternative medicine, has described the marketing of reiki as "fraudulent misrepresentation".[4]

In criticizing the State University of New York for offering a continuing education course on reiki, one source stated, "reiki postulates the existence of a universal energy unknown to science and thus far undetectable surrounding the human body, which practitioners can learn to manipulate using their hands,"[19] and others said, "In spite of its [reiki's] diffusion, the baseline mechanism of action has not been demonstrated ..."[20] and, "Neither the forces involved nor the alleged therapeutic benefits have been demonstrated by scientific testing."[21]

Several authors have pointed to the vitalistic energy which reiki is claimed to treat,[22] [23][24] with one saying, "Ironically, the only thing that distinguishes reiki from therapeutic touch is that it [reiki] involves actual touch,"[24] and others stating that the International Center for Reiki Training "mimic[s] the institutional aspects of science" seeking legitimacy but holds no more promise than an alchemy society.[25]

A guideline published by the American Academy of Neurology, the American Association of Neuromuscular & Electrodiagnostic Medicine, and the American Academy of Physical Medicine and Rehabilitation states, "Reiki therapy should probably not be considered for the treatment of PDN [painful diabetic neuropathy]."[9] Canadian sociologist Susan J. Palmer has listed reiki as among the pseudoscientific healing methods used by cults in France to attract members.[26]

Stephen Barrett of Quackwatch describes reiki as a "nonsensical method".[5] As a reason for why NCCAM should stop funding reiki research, he writes: "Reiki has no substantiated health value and lacks a scientifically plausible rationale. Science-based healthcare settings should not tolerate its use, and scarce government research dollars should not be used to study it further."[5][6]

#### Evidence quality

A 2008 systematic review of nine randomized clinical trials found several shortcomings in the literature on reiki.[3] Depending on the tools used to measure depression and anxiety, the results varied and were not reliable or valid. Furthermore, the scientific community has been unable to replicate the findings of studies that support reiki. The

review also found issues in reporting methodology in some of the literature, in that often there were parts omitted completely or not clearly described.[3] Frequently in these studies, sample sizes were not calculated and adequate allocation and double-blind procedures were not followed. The review also reported that such studies exaggerated the effectiveness of treatment and there was no control for differences in experience of reiki practitioners or even the same practitioner at times produced different outcomes. None of the studies in the review provided a rationale for the treatment duration and no study reported adverse effects.[3]

## Safety

See also: Alternative medicine § Safety

Safety concerns for reiki sessions are very low and are akin to those of many complementary and alternative medicine practices. Some physicians and health care providers, however, believe that patients may unadvisedly substitute proven treatments for life-threatening conditions with unproven alternative modalities, including reiki, thus endangering their health.[27][28]

## Catholic Church concerns

In March 2009, the Committee on Doctrine of the United States Conference of Catholic Bishops issued the document *Guidelines for Evaluating Reiki as an Alternative Therapy*, in which they declared that the practice of reiki was based on superstition, being neither truly faith healing nor science-based medicine: "Reiki lacks scientific credibility. It has not been accepted by the scientific and medical communities as an effective therapy." [29] They stated that reiki was incompatible with Christian spirituality since it involved belief in a human power over healing rather than prayer to God,[30] and that, viewed as a natural means of healing, it lacked scientific credibility.[31] The 2009 guideline concluded that "since reiki therapy is not compatible with either Christian teaching or scientific evidence, it would be inappropriate for Catholic institutions, such as Catholic health care facilities and retreat centers, or persons representing the Church, such as Catholic chaplains, to promote or to provide support for reiki therapy." [29] Since this announcement, some Catholic lay people have continued to practice reiki, but it has been removed from many Catholic hospitals and other institutions.[32]

In a December 2014 article from the USCCB's Committee on Divine Worship on exorcism and its use in the Church, reiki is listed as a practice "that may have [negatively] impacted the current state of the afflicted person".[33]

## Training, certification and adoption

A reiki practitioner who offers teaching is known as a "reiki master".[7]

There is no central authority controlling use of the words reiki or reiki master.[34] Certificates can be purchased online for under \$100.[35] It is "not uncommon" for a course to offer attainment of reiki master in two weekends.[36] There is no regulation of practitioners or reiki master in the United States.[37]

The Washington Post reported in 2014 that in response to customer demand, at least 60 hospitals in the United States offered reiki, at a cost of between \$40 and \$300 per session.[38] Cancer Research UK reported in 2019 that some cancer centers and hospices in the UK offer free or low-cost reiki for people with cancer.[8] The cost per session for treatment vary widely, but a CNBC report found a practitioner charging \$229 per session of 60–90 minutes.[39]

## History

[icon]

This section needs expansion. You can help by making an edit request. (May 2019)

Mikao Usui (1865–1926)

Chujiro Hayashi (1880–1940)

Mikao Usui originated the practice in Japan.[2] According to the inscription on his memorial stone, Usui taught his system of reiki to more than 2,000 people during his lifetime. While teaching reiki in Fukuyama, Usui suffered a stroke and died on 9 March 1926.[40][better source needed]

The first reiki clinic in the United States was started in 1970 by Hawayo Takata, a student of Chujiro Hayashi (who was a disciple of Usui).[10]

See also

flag Japan portal

Glossary of alternative medicine

List of ineffective cancer treatments

Scientific skepticism

The Force

Notes

/reɪki/ RAY-kee; Japanese: 霊気

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Inscription on Usui's memorial

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External links

"Reiki Can't Possibly Work. So Why Does It?", 2020 article in The Atlantic

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Pseudoscience

List of topics characterized as pseudoscience

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Cargo cult scienceCharlatanCrankFringe theory Fringe

sciencePseudoarchaeologyPseudohistoryPseudomathematicsJunk

scienceParanormalPathological scienceQuackerySnake oilSuperseded scientific

theoryTrue-believer syndromeVoodoo Science

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AntigaspillsEar candlingElectromagnetic hypersensitivityEnergy medicineFad

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SupplementNaturopathyPalmistryPanchagavyaPatent medicinePhrenologyPrimal

therapyRadionicsReikiTraditional medicine Traditional Chinese

medicineTrepanningVertebral subluxationWind turbine syndromeYoung blood

transfusion

Social science

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#### Physics

Anti-gravity Cold fusion Faster-than-light travel Perpetual motion Quantum mysticism Reactionless drive Dean drive EMDrive Teleportation Tractor beam Water-fueled car

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Alchemy Aquatic ape hypothesis Astrology Biodynamic agriculture Biological transmutation Creation science Cryptozoology Dianetics Auditing Dowsing Electronic voice phenomenon Eugenics Facilitated communication Feng shui Flat Earth theory Modern flat Earth beliefs Graphology Intelligent design Laundry ball Law of attraction Levitation Lysenkoism Numerology Orgone Polygraph Pseudoscientific metrology Rapid prompting method Statement analysis Ufology Voice stress analysis Water memory

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Tai chi  
太極拳

The lower dantian in tai chi:  
Taijitu (yin and yang) rotate, while  
the core reverts to stillness (wuji).

Yang Chengfu (c. 1931) in Single Whip posture of Yang-style tai chi solo form

Also known as      See etymology

Focus Taoism

Hardness      Forms:

CompetitionLight contact (pushing hands, no strikes)Full contact (strikes, kicks, throws, takedowns etc.)

Country of origin      China

Date of formation      late 16th century

Creator      Chen Wangting or Zhang Sanfeng

Famous practitioners

Chen Wangting

Chen Changxing

Chen Qingping

Chen Fake

Yang Luchan

Yang Chengfu

Cheng Man-ch'ing

Wu Quanyou

Wu Jianquan

Wu Yuxiang

Sun Lutang

Olympic sport      Demonstration sport

Taijiquan

UNESCO Intangible Cultural Heritage

Country      China

Reference      424

Region      Asia and the Pacific

Inscription history

Inscription      2020 (15th session)

List      Representative

UNESCO Cultural Heritage

Tai chi

Traditional Chinese 太極拳

Simplified Chinese 太极拳

Literal meaning      "Taiji Fist"

Transcriptions

Part of a series on

Chinese martial arts (Wushu)

Styles of Chinese martial arts

List of Chinese martial arts

Terms

Historical locations

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 vte

Tai chi is a Chinese martial art. Initially developed for combat and self-defense,[1] for most practitioners it has evolved into a sport and form of exercise. As an exercise, tai chi is performed as gentle, low-impact movement in which practitioners perform a series of deliberate, flowing motions while focusing on deep, slow breaths. Often described as "meditation in motion," tai chi aims to cultivate and balance the body's qi (vital energy), thereby promoting both mental and physical well-being.[2]

Many forms of tai chi are practiced, both traditional and modern. While the precise origins are not known, the earliest documented practice is from Chen Village and Zhabao Village in Henan on the North China Plain, a region where centuries of rebellions, invasions, and adverse economic and social conditions nurtured the development of a wide range of martial arts, including those of the Shaolin Monastery on Mount Song at the western edge of the plain.[3][4]

Most modern styles trace their development to five traditional schools: Chen, Yang, Wu (Hao), Wu, and Sun. In the early 20th century Yang Chengfu, Wu Jianquan, Sun Lutang, and others promoted and standardized the art for its health benefits in programs supported by the Nationalist government,[5] an approach that was further expanded and institutionalized by the PRC government after 1949.[6] In 2020, tai chi was included in the UNESCO List of Intangible Cultural Heritage of Humanity.[7]

## Etymology

The name "tai chi", the most common English spelling, is not a standard romanization of the Chinese name for the art (simplified Chinese: 太极拳; traditional Chinese: 太極拳; lit. 'Taiji boxing'). The Chinese name was first commonly written in English using the Wade–Giles system as "t'ai chi ch'üan". But English speakers abbreviated it to "t'ai chi"

and dropped the mark of aspiration. Since the late twentieth century, pinyin has been officially adopted in China and replaced Wade–Giles as the most popular system for romanizing Chinese. In pinyin, tai chi is spelled tàijíquán.[8][9] In English, tai chi is sometimes referred to as "shadowboxing".[10]

|            |            |        |         |
|------------|------------|--------|---------|
| Characters | Wade–Giles | Pinyin | Meaning |
|------------|------------|--------|---------|

|    |               |                                                      |
|----|---------------|------------------------------------------------------|
| 太極 | t'ai chitàijí | Taiji, the cosmological relationship of Yin and Yang |
|----|---------------|------------------------------------------------------|

|   |        |      |                 |
|---|--------|------|-----------------|
| 拳 | ch'üan | quán | fist, or boxing |
|---|--------|------|-----------------|

The etymology of tai chi's Chinese name is somewhat uncertain because of the lack of a record of spoken usage. Before the mid-nineteenth century, it appears that outsiders generically described the art as zhanquan (沾拳; "touch boxing"), "Long Boxing"(長拳), [note 1] mianquan ("Soft/Cotton/Neutralizing Boxing"; 軟/棉/化拳)[citation needed] or shisan shi (十三式; "the thirteen techniques").[11] In the mid-nineteenth century, the art began to be associated with the philosophy of taiji (see Conceptual background).[12] This association may have originated in the writings of the founders of Wu (Hao)-style tai chi, perhaps inspired by a tai chi classic attributed to the semi-mythical Wang Zongyue that begins with the words "Taiji is born from Wuji; it is the mother of Yin and Yang".[note 2] However, as the Wu (Hao) founders had no financial need to promote their art, their contributions to the "tai chi classics" were not distributed widely for many years. The first public association between taiji and the art was a poem by Imperial Court scholar Weng Tonghe describing a tai chi performance by Yang Luchan.[14][15] [16][17] It is not clear whether Weng was making a new connection or whether the new name was already in use. Written evidence for the Yang family's adoption of the name taiji first appeared in a later text, possibly completed in 1875 by Yang Luchan's son, Yang Banhou, or no later than the first decade of the twentieth century by one or more of Yang Banhou's disciples.[18][19][20][16] By the second decade of the twentieth century, Yang Chengfu's disciples and Sun Lutang were using the term taijiquan in their publications, including in the titles of some of the tai chi classics. It then appeared in a book by a Chen family member, Chen Xin, published after he died in 1929.[14][21]

Philosophical background

See also: Tai chi philosophy

Zhou Dunyi's Taijitu diagram which illustrates the Taijitu cosmology.

Chinese philosophy, particularly Taoist and Confucian thought, forms the conceptual background to tai chi.[22] Early tai chi texts include embedded quotations from early Chinese classics like the I Ching, Great Learning, Book of Documents, Records of the Grand Historian, and Zhuangzi, as well as from famous Chinese thinkers like Zhu Xi, Zhou Dunyi, and Mencius.[22]

Early tai chi sources are grounded in Taiji cosmology. Taiji cosmology appears in both Taoist and Confucian philosophy, where it represents the single source or mother of yin and yang (represented by the taijitu symbol ☯).[23][22] Tai chi also draws on Chinese theories of the body, particularly Taoist neidan (internal alchemy) teachings on qi (vital energy) and on the three dantian. Cheng Man-ch'ing emphasizes the Taoist background

of tai chi and states that it "enables us to reach the stage of undifferentiated pure yang, which is exactly the same as Laozi's 'concentrating the qi and developing softness'".[22]

As such, tai chi considers itself an "internal" (neijia) martial art focused on developing qi. [22] In China, tai chi is categorized under the Wudang group of Chinese martial arts[24] —that is, arts applied with internal power.[25] Although the term Wudang suggests these arts originated in the Wudang Mountains, it is used only to distinguish the skills, theories, and applications of neijia from those of the Shaolin grouping, or waijia (hard/external styles).[22]

Tai chi also adopts the Taoist ideals of softness overcoming hardness, of wu wei (effortless action), and of yielding into its martial art technique while also retaining Taoist ideas of spiritual self-cultivation.[22]

Tai chi's path is one of developing naturalness by relaxing, attending inward, and slowing mind, body, and breath.[22] This allows the practitioner to become less tense, to drop conditioned habits, to let go of thoughts, to allow qi to flow smoothly, and thus to flow with the Tao. It is thus a kind of moving meditation that allows us to let go of the self and experience no-mind (wuxin) and spontaneity (ziran).[22]

A key aspect of tai chi philosophy is to work with the flow of yin (softness) and yang (hardness) elements. When two forces push each other with equal force, neither side moves. Motion cannot occur until one side yields. Therefore, a key principle in tai chi is to avoid using force directly against force (hardness against hardness). Laozi provided the archetype for this in the Tao Te Ching when he wrote, "The soft and the pliable will defeat the hard and strong." [26] Conversely, when in possession of leverage, one may want to use hardness to force the opponent to become soft. Traditionally, tai chi uses both soft and hard. Yin is said to be the mother of Yang, using soft power to create hard power.

Traditional schools also emphasize that one is expected to show wude ("martial virtue/heroism"), to protect the defenseless, and to show mercy to one's opponents.[5]

In December 2020, the 15th regular session of the UNESCO Intergovernmental Committee for the Safeguarding of the Intangible Cultural Heritage included tai chi in the UNESCO Representative List of the Intangible Cultural Heritage of Humanity.[27]

## Practice

Traditionally, the foundational tai chi practice consists of learning and practicing a specific solo forms or routines (taolu).[22] This entails learning a routine sequence of movements that emphasize a straight spine, abdominal breathing and a natural range of motion. Tai chi relies on knowing the appropriate change in response to outside forces, as well as on yielding to and redirecting an attack, rather than meeting it with opposing force.[28] Physical fitness is also seen as an important step towards effective self-defense.

Tai chi movements were inspired by animals, especially birds and leopards.[29]

There are also numerous other supporting solo practices such as:[22]

Sitting meditation: The empty, focus and calm the mind and aid in opening the microcosmic orbit.

Standing meditation (zhan zhuang) to raise the yang qi

Qigong to mobilize the qi

Acupressure massage to develop awareness of qi channels

Traditional Chinese medicine is taught to advanced students in some traditional schools.  
[30]

There is no scientific evidence for the existence of qi,[31] nor any demonstrating the effectiveness of acupressure[32][33][34] or traditional Chinese medicine[35][36] beyond that of placebo treatment.

Further training entails learning tuishou (push hands drills), sanshou (striking techniques), free sparring, grappling training, and weapons training.[22]

The fundamental training concepts of the art are detailed in a few dozen classical texts originally written in classical Chinese by tai chi masters, the "tai chi classics". In these texts, it is noted that the physiological and kinesiological aspects of the body's movements are characterized by the circular motion and rotation of the pelvis, based on the metaphors of the pelvis as the hub and the arms and feet as the spokes of a wheel. Furthermore, the respiration of breath is coordinated with the physical movements in a state of deep relaxation, rather than muscular tension.[37]

Tai chi is a complete martial art system with a full range of bare-hand movement sets and weapon forms, such as the jian (straight sword), dao (curved sword), and qiang (spear), which are based on the dynamic relationship between yin and yang. While tai chi is typified by its slow movements, many styles (including the three most popular: Yang, Wu, and Chen) have secondary, faster-paced forms. Some traditional schools teach martial applications of the postures of different forms (taolu).

Solo practices

Further information: List of tai chi forms

Painting in Chenjiagou, illustrating taolu according to the Chen style of tai chi  
Taolu (solo "forms") are choreographed sets of movements practiced alone or in unison as a group. Tai chi is often characterized by slow movements in Taolu practice, and one of the reasons is to develop body awareness. Accurate, repeated practice of the solo routine is said to retrain posture, encourage circulation throughout students' bodies, maintain flexibility, and familiarize students with the martial sequences implied by the forms. Usually performed standing, solo forms have also been adapted for seated practice.[38]



Weapon practice

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Taijijian

A pair of jian with their scabbards

Wushu jian pair event at the 10th All China games

Tai chi practices involving weapons also exist. Weapons training and fencing applications often employ:

the jian, a straight double-edged sword, practiced as taijijian;  
the dao, a heavier curved saber, sometimes called a broadsword;  
the tianshan, a folding fan, also called shan and practiced as taijishan;  
the gun, a 2-meter (6+½ ft) long wooden staff and practiced as taijigun;  
the qiang, a 2-meter (6+½ ft) spear or a 4-meter-long (13 ft) lance.  
More exotic weapons include:

the large dadao and podao sabres;  
the ji, or halberd;  
the cane;  
the sheng biao, or rope dart;  
the sanjiegun, or three sectional staff;  
the feng huo lun, or wind-and-fire wheels;  
the lasso;  
the whip, chain whip and steel whip.  
History

A statue of Chen Wangting, an early pioneer of tai chi

Early development

Tai chi's formative influences came from practices undertaken in Taoist and Buddhist monasteries, such as Wudang, Shaolin, and The Thousand Year Temple in Henan.[39] The early development of tai chi proper is connected with Henan's Thousand Year Temple and a nexus of nearby villages: Chen Village, Tang Village, Wangbao Village, and Zhaobao Town. These villages were closely connected, shared an interest in the martial arts and many went to study at Thousand Year Temple (which was a syncretic temple with elements from the three teachings).[39] New[clarify] documents from these villages, mostly dating to the 17th century, are some of the earliest sources for the practice of tai chi.[39]

Some traditionalists claim that tai chi is a purely Chinese art that comes from ancient Taoism and Confucianism.[22] These schools believe that tai chi theory and practice

were formulated by Taoist monk Zhang Sanfeng in the 12th century. A research project conducted by the China Sports Commission determined as much, and Wu Tunan also examined Zhang Sanfeng's contribution to Tai Chi in his book "A Study of Tai Chi". [citation needed] These stories are often filled with legendary and hagiographical content and lack historical support.[22][39]

In March 2007, the China Federation of Literary and Art Circles recognized Chenjiagou in Wen County, Jiaozuo City, Henan Province as the birthplace of Chinese Tai Chi. In August 2007, after further detailed investigation and verification of various opinions in society, the national martial arts department recognized Chenjiagou in Wen County as the "birthplace of Chinese martial arts Tai Chi." [citation needed]

Modern historians point out that the earliest reference indicating a connection between Zhang Sanfeng and martial arts is actually a 17th-century piece called Epitaph for Wang Zhengnan (1669), composed by Huang Zongxi (1610–1695).[12][22] Aside from this single source, the other claims of connections between tai chi and Zhang Sanfeng appeared no earlier than the 19th century.[12][22] According to Douglas Wile, "there is no record of a Zhang Sanfeng in the Song Dynasty (960–1279), and there is no mention in the Ming (1368–1644) histories or hagiographies of Zhang Sanfeng of any connection between the immortal and the martial arts." [22]

Another common theory for the origin of tai chi is that it was created by Chen Wangting (1580–1660) while living in Chen Village (陳家溝), Henan.[40] The other four contemporary traditional tai chi styles (Yang, Sun, Wu and Wu/Hao) trace their teachings back to Chen village in the early 1800s.[5][41]

Yang Luchan (1799–1872), the founder of the popular Yang style, trained with the Chen family for 18 years before he started to teach in Beijing, which strongly suggests that his work was heavily influenced by the Chen family art. Martial arts historian Xu Zhen claimed that the tai chi of Chen Village was influenced by the Taizu changquan style practiced at nearby Shaolin Monastery, while Tang Hao thought it was derived from a treatise by Ming dynasty general Qi Jiguang, Jixiao Xinshu ("New Treatise on Military Efficiency"), which discussed several martial arts styles including Taizu changquan.[42][43]

## Standardization

Taoist practitioners practising

Under the Nationalist government, the Central Guo Shu Institute (中央國術館) in Chongqing under the direction of Chen Panling (陳泮嶺) in 1936 created a unified form combining elements of Chen, Yang, Sun and Wu forms. This was called Guo Shu Taiji (國術太極). After the retreat of the Nationalists to Taiwan in 1949, Chen Pan-ling continued to propagate the form where it is now called 99 Taiji. This frame formed the structure of Wang Shu-jin's taiji form.[44]

In 1956, the government-sponsored Chinese Sports Committee (CSC) brought together a group of tai chi masters to create a shortened tai chi form that could help improve the health of the general public, because the long traditional forms were considered too difficult for most people to learn. The result was the 24-posture simplified form, developed from the traditional Yang-style long form.[6]

Another 1950s form is the "97 movements combined tai chi form", which blends Yang, Wu, Sun, Chen, and Fu styles.

In 1976, they developed a slightly longer demonstration form that would not require the traditional forms' memory, balance, and coordination. This became the "Combined 48 Forms" that were created by three 'wushu coaches, headed by Men Hui Feng. The combined forms simplified and combined classical forms from the original Chen, Yang, Wu, and Sun styles. Other competitive forms were designed to be completed within a six-minute time limit.

In the late 1980s, CSC standardized more competition forms for the four major styles as well as combined forms. These five sets of forms were created by different teams, and later approved by a committee of wushu coaches in China. These forms were named after their style: the "Chen-style national competition form" is the "56 Form". Also standardized was the "42 Form", also known as the "Competition Form", which combined movements from multiple styles.

In the 11th Asian Games of 1990, wushu was included as an item for competition for the first time with the 42 Form representing tai chi. The International Wushu Federation (IWUF) applied for wushu to be part of the Olympic Games.[45] Tai chi was added to the UNESCO Intangible Cultural Heritage Lists in December of 2020, nominated by China. [46]

## Styles

See also: History of Chinese martial arts

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Chinese origin

Wu-style master Eddie Wu demonstrating the form "Grasp the bird's tail" at a tournament in Toronto, Ontario, Canada

The five major styles of tai chi are named for the Chinese families who originated them:

Chen style (陳氏) of Chen Wangting (1580–1660)

Yang style (楊氏) of Yang Luchan (1799–1872)

Wu/Hao style (武郝氏) of Wu Yuxiang (1812–1880) and Hao Weizhen (1842–1920)

Wu style (吳氏) of Wu Quanyou (1834–1902) and his son Wu Jianquan (1870–1942)

Sun style (孫氏) of Sun Lutang (1861–1932)

The most popular is Yang, followed by Wu, Chen, Sun, and Wu/Hao.[22] The styles share underlying theory, but their training differs.

Dozens of new styles, hybrid styles, and offshoots followed, although the family schools are accepted as standard by the international community. Other important styles are Zhaobao tai chi, a close cousin of Chen style, which is recognized by Western practitioners; Fu style, created by Fu Zhen song, which evolved from Chen, Sun and Yang styles, and incorporates movements from baguazhang;[citation needed] and Cheng Man-ch'ing style, which simplifies Yang style.

Around the world in the 20th and 21st centuries, some Chinese emigrants who had learned tai chi in China continued to practice it together in their new communities.[47]

North America

United States

Choy Hok Pang (wd), a disciple of Yang Chengfu, was the first known proponent of tai chi to openly teach in the United States, beginning in 1939. His son and student Choy Kam Man (wd) emigrated to San Francisco from Hong Kong in 1949 to teach tai chi in Chinatown. Choy Kam Man taught until he died in 1994.[48][49]

Sophia Delza, a professional dancer and student of Ma Yueliang, performed the first known public demonstration of tai chi in the United States at the New York City Museum of Modern Art in 1954. She wrote the first English language book on tai chi, *T'ai-chi Ch'üan: Body and Mind in Harmony*, in 1961. She taught regular classes at Carnegie Hall, the Actors Studio, and the United Nations.[50][51]

Huang Wenshan, a Chinese-American scholar and pioneer of cultural studies, has been called "the father of Tai Chi in the America." [52] A student of Dong Yingjie and a lifelong advocate of tai chi, in 1962 with the help of Marshall Ho'o, a former student of Choy Hok Pang, he founded the National Tai Chi Chuan Institute in Los Angeles, and the first nationwide organization of tai chi schools in the USA, the National Tai Chi Chuan Association.[53] In 1973 Huang wrote one of the earliest comprehensive and popular books on the topic in English, *Fundamentals of Tai Chi Chuan*. [54] From 1973 to 1974 Marshall Ho'o hosted a television show on tai chi broadcasting from Los Angeles, which began weekly, grew to four times per week, [55] and was picked up by other stations across the country as its popularity grew. [56] Ho'o also promoted the art in *Black Belt* magazine, authored a book on tai chi, and co-founded the Aspen Academy of Martial Arts. [57]

Tung Hu Ling, son of Dong Yingjie and a pioneer in the spread of tai chi outside of China, was invited for a teaching tour of Los Angeles, San Francisco, New York, Toronto, and Hawaii organized by Huang and Ho'o from 1966 to 1967 [53][58] During that tour Tung taught for a term at Huang's Los Angeles school assisted by Ho'o, who said that was "the first time a tai chi master came to us." [53] Within a year Tung returned

to found a school in Hawaii later led by his son Dong Zengchen and now by his grandson Alex Dong who is based in New York, while in 1971 his son Tung Kai Ying founded a school in Los Angeles now run by Kai Ying's son Tung Chen-wei, and from those centers the family has grown a global network of schools and workshops.[59][60]

Cheng Man-ch'ing opened his Shr Jung Tai Chi School after he moved to New York from Taiwan in 1964. Unlike the older generation of practitioners, Cheng was cultured and educated in American ways,[clarification needed] and thus was able to transcribe Yang's dictation into a written manuscript that became the de facto manual for Yang style. Cheng felt Yang's traditional 108-movement form was unnecessarily long and repetitive, which makes it difficult to learn.[citation needed] He thus created a shortened 37-movement version that he taught in his schools. Cheng's form became the dominant form in the eastern United States until other teachers immigrated in larger numbers in the 1990s. He taught until his death in 1975.[61]

#### Canada

Moy Lin-shin arrived in Toronto, Canada, from China in 1970, where he started teaching tai chi and related internal arts.[62]

#### Europe

##### Italy

M<sup>o</sup>Chang Dsu Yao (1918–1992) was the first Chinese Master to introduce Traditional Chinese martial arts to Italy. After a military career and teaching martial arts in Taiwan, he moved to Italy in 1975. There, he began teaching Tai Chi Chuan, that he had learned from Yang Chengfu, and Shaolin Kung Fu. His teachings attracted numerous students, among them Roberto Fassi (it), with whom he co-authored several martial arts publications.[63][64]

##### United Kingdom

Norwegian Pytt Geddes was the first European to teach tai chi in Britain, holding classes at The Place in London in the early 1960s. She had first encountered tai chi in Shanghai in 1948, and studied with Choy Hok Pang and his son Choy Kam Man (who both also taught in the United States) while living in Hong Kong in the late 1950s.[65]

#### Yin and yang

More traditional practitioners hold that the two aspects of health and martial arts make up the art's yin and yang. The "family" schools present their teachings in a martial art context, whatever the intention of their students.[66]

#### Health

See also: World Tai Chi and Qigong Day

#### Outdoor practice in Beijing's Temple of Heaven

Tai chi's health training concentrates on relieving stress on the body and mind. In the 21st century, tai chi classes that purely emphasize health are popular in hospitals,

clinics, community centers and senior centers. Tai chi's low-stress training method for seniors has become better known.[67]

A Chinese woman performs Yang-style tai chi.

Clinical studies exploring tai chi's effect on specific diseases and health conditions exist, though there are insufficient studies with consistent approaches to generate a comprehensive conclusion.[68]

Tai chi has been promoted for treating various ailments, and is supported by the Parkinson's Foundation and Diabetes Australia, among others. However, medical evidence of effectiveness is lacking.[69][70] A 2017 systematic review found that it decreased falls in older people.[71]

A 2011 comprehensive overview of systematic reviews of tai chi recommended tai chi to older people for its physical and psychological benefits. It found positive results for fall prevention and overall mental health. No conclusive evidence showed benefit for most of the conditions researched, including Parkinson's disease, diabetes, cancer and arthritis.[69]

A 2015 systematic review found that tai chi could be performed by those with chronic medical conditions such as chronic obstructive pulmonary disease, heart failure, and osteoarthritis without negative effects, and found favorable effects on functional exercise capacity.[72]

In 2015 the Australian Government's Department of Health published the results of a review of alternative therapies that sought to identify any that were suitable for coverage by health insurance. Tai chi was one of 17 therapies evaluated. The study concluded that low-quality evidence suggests that tai chi may have some beneficial health effects when compared to control in a limited number of populations for a limited number of outcomes.[70]

A 2020 review of 13 studies found that tai chi had positive effect on the quality of life and depressive symptoms of older adults with chronic conditions who lived in community settings.[73]

In 2022, the U.S.A agency the National Institutes of Health published an analysis of various health claims, studies and findings. They concluded the evidence was of low quality, but that it appears to have a small positive effect on quality of life.[74]

### Sport and competition

In addition to its health and meditative aspects, Tai Chi is practiced as a competitive sport in several formats. The most common is tuishou (推手; pushing hands), in which two participants attempt to unbalance, move, or throw one another while maintaining sensitivity and control. Competitions may use fixed-step or moving-step rulesets,

depending on whether foot movement is restricted. Scoring typically rewards the ability to displace the opponent through weight shifting, yielding, and redirection.

Tai Chi form routines (tàijíquán tàolù, 太極拳套路) are also performed competitively[75]. These performances are evaluated using criteria such as balance, smoothness, and technical difficulty, sometimes incorporating movements from multiple family styles.

Some organizations promote sanshou (散手; free-hand) or light- to full-contact sparring events intended to show Tai Chi's combative efficacy, though these are less common and often overlap with broader wushu competition formats.

Tournaments are held annually in Europe, Asia and the Americas[76], with some drawing over 1000 competitors.

Self-defense and martial application

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In its martial aspect, tai chi emphasizes defense over attack, and replies to hard forces with soft forces and vice versa.

See also

flag    China portal

        Martial arts portal

Qigong

Self-healing

Wushu

Yangsheng (Daoism)

Other names

Tai Ji Quan

Taijiquan

Taichi

T'ai chi

T'ai chi ch'üan

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Notes

"Long" as in "Continuous"; not to be confused with the external martial art also known as Long Fist or Changquan.

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siddhis

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[Ashta Siddhi | The Eight Divine Powers of Hanuman Ji | NYA](#)

Siddhis are supernatural or magical powers, abilities, and spiritual attainments achieved through advanced yogic practices like meditation, found in Indian religions (Hinduism, Buddhism, Jainism). They range from common psychic feats (telepathy, clairvoyance) to the famous Ashta Siddhis (eight great powers) like anima (becoming tiny), mahima (becoming huge), laghima (levitation), and prapti (manifesting objects). While fascinating, many yogic traditions warn that pursuing siddhis can inflate the ego and become a distraction from true liberation, which involves transcending the self.

[Types of Siddhis](#)

[General Siddhis](#): Include mind-reading, invisibility, healing, controlling elements, and manifesting desires.

[Ashta Siddhis \(Eight Great Siddhis\)](#):

[Anima](#): Becoming infinitesimally small.

[Mahima](#): Becoming infinitely large.

[Laghima](#): Becoming extremely light, allowing flight.

[Garima](#): Becoming extremely heavy (less commonly listed).

[Prapti](#): Obtaining anything, anywhere.

[Prakamya](#): Fulfilling all desires, having irresistible will.

[Ishitva](#): Lordship over nature's elements and laws.

[Vashitva](#): Control over all beings and elements.

[How They Are Attained](#)

[Intense yogic discipline \(sadhana\).](#)

[Deep meditation and concentration.](#)

[Birth \(some have inherent abilities\).](#)

Certain herbs, mantras, or ascetic practices.

Significance & Warnings

Byproducts of Realization: They are often seen as signs of spiritual progress, notes Wikipedia.

Ego Traps: Many masters, including Patanjali, caution that focusing on siddhis inflates the ego, creating a spiritual obstacle (the "peacock consciousness") and diverting from the ultimate goal of liberation (moksha).

Distractions: They are considered lesser attainments, akin to passing sacred sites on the way to a holy city, but not the destination itself, according to yogashikha Upanishad.

Understanding Siddhis: Superpowers in Yoga

The Yoga Sutras of Patanjali mention Siddhis, which are extraordinary powers or abilities that can be attained through advanced st...

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Siddhi

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Siddhis (Sanskrit: सिद्धि siddhi; fulfillment, accomplishment) are material, paranormal, supernatural, or otherwise magical powers, abilities, and attainments

Kammaṭṭhāna

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Sādhana

Visuddhimagga

What are the 8 siddhis and 9 nidhis and how does one ...

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Warning to All Seekers

19.6K+ views · 1 month ago

Supreme Yogi · YouTube

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Help me understand siddhis (yogic powers)

Popular comment · Welcome to the tradition! KS is ultimately a claim that human beings are Śiva, but have isolated themselves from their own Śiva-nature, through conceptualization and identification with limited and limiting concepts. When one starts to recover their Śiva-nature, one loses many of these self-imposed limitations, regularly dropping in to a deeper nature of who they are, and thus becomes capable of doing more than a typical person can do. The less limitations you impose on your being, the more you are able to do in action. That's what these siddhis are. But this tradition is very clear about what a distraction the siddhis are, and they aren't pursued whatsoever. So if you're not interested in them, you're already on the right track and aligned with the tradition. More interestingly, the tradition will also tell you to ignore some of the wild mystical experiences you can have during meditation—and that's much harder for many modern people, who don't believe in siddhis but are very attached to having "non-dual" or psychedelic type experiences. So keep that challenge in mind as well, as you progress!

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"The subject of Siddhis, or supernatural powers and abilities, is largely misunderstood in Spiritual circles and requires clarification. In Sanskrit, Siddhi means "fulfilment" or "accomplishment," implying the gifts one receives after completing the different stages or degrees of advancement through Spiritual practices such as meditation and Yoga. Since the aim of all Spiritual practices is Spiritual Evolution, Siddhis are psychic powers that become unveiled as the individual integrates the Spiritual energy and raises the vibration of their consciousness. In the Yoga Sutras, Patanjali writes that Siddhis are attained when the Yogi has achieved mastery over their mind, body, and Soul and can sustain concentration, meditation, and Samadhi at will. Mastery over the Self is an integral part of one's journey towards Enlightenment, including governance over the Elements. By obtaining control over our inner reality, we can exert a mental force that affects the outer reality—As Above, So Below

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Ashta siddhis are recipes for success without stress ! ॐ ♥ An amazing talk by Swami Swaroopananda of the Chinmaya Mission. Swamiji has a lovely way of seamlessly integrating various stories into his talk as he makes his point. His talk was entitled "Success

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Siddhana here what siddhis do you guys want

Popular comment · I meditate daily, and I have found the piece I am looking for

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At the beginning of the movie, the rishis ask the protagonist to perform penance for the Ashta Siddhis. Since I am already aware of the Ashta Siddhis, I didn't pay much attention to the logics in actions ♥ NOTE: Here, I am only talking about the logic in this particular subject △ #akhanda2thaandavam #balakrishna #balayya

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Shival Mishra · YouTube

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Exhibiting Siddhis or performing miracles is not the way to define an Avatar in Hinduism  
Popular comment · Nice post 👍 One who attracted to powers, external magical tricks, siddhis, sense satisfying aspects end up in deluded from lord. That's how maya protects real lord to be known. Let truth be that way and be protected from adharmics. (Refer: Bg 7.25, Bg 7.3, Bg 18.58, Bg 7.15 Mahabharata 12.348.76 Rājasī tāmāsī caiva vyāmiśrē prakṛtī smṛtē | tadātmakam hi puruṣam jāyamānam viśāmpatē || pravṛttīlakṣaṇairyuktam nāvēkṣati hariḥ svayam )

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The Sanskrit word siddhi means “accomplishment” or “perfection,” typically referring to

special abilities acquired by yogis through sustained practice or sādhanā. Through sustaining different practices, whether it be meditation, recitation of mantras, or practicing the yama (observance) of satya meaning “truthfulness,” different siddhis will be acquired by the yogi. Taking the example of satya, the yogi established in truthfulness attains the siddhi of his or her words coming true. That yogi is able to manifest through the power of speech, known as vāk in Sanskrit. Vāk siddhi is therefore “perfection of speech,” the ability to manifest reality through one’s words. In the second chapter of Patañjali’s Yogasūtra, Vāk siddhi is explained in the following verse: “When truthfulness is attained, the yogi’s words become fruitful.” सत्यप्रतिष्ठायां क्रियाफलाश्रयत्वम् ॥ २.३६ ॥ satyapraṭiṣṭhāyāṃ kriyāphalāśrayatvam This verse can serve as a reminder of the power and impact of speech, and usin

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Siddhi powers like materialization and teleportation are not the goal of spiritual seekers.

Real miracles are helping others, not showing off.

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Siddhis are actualization and maximization of consciousness in a group of cells. Easiest siddhi: Vakidi - power of speech.

How can I achieve SIDDHIS or Yogic Superpowers? A Master ...

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Siddhis are the magical powers or paranormal abilities attained through rigorous spiritual practice.

What is Siddhi? - Definition from Yogapedia

Yogapedia

<https://www.yogapedia.com> › ... › Sanskrit › Siddhi

Siddhi is the term given for a spiritual or seemingly magical power or capability, which is obtained through rigorous and accomplished spiritual practices.

Understanding Siddhis: Superpowers in Yoga

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<https://courses.onlineyoga.school> › pages › understandin...

Siddhis refer to extraordinary powers, abilities, or accomplishments that can be attained through advanced stages of practice and spiritual development.

Yogic Capacities | Scholarly Resources

Esalen Institute

<https://www.esalen.org> › ctr › yogic-capacities

Yogic Potentials and Capacities, or siddhis, in Hindu-Buddhist Psychology Note: A siddhiperceived as a revelation of ultimate truth or reality is termed a ...

Siddhi: 48 definitions

Wisdom Library

<https://www.wisdomlib.org> › definition › siddhi

May 8, 2025 — Siddhi (सिद्धि) is a Sanskrit technical term, used in warfare, referring to “achievement” (of the king), using the three divisions of his strength (śakti).

Ashta siddhis are recipes for success without stress

Hindu American Foundation

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In Indian religions, Siddhis are material, paranormal, supernatural, or otherwise magical powers, abilities, and attainments that are the products of yogic advancement through sādhanās such as meditation and yoga. The term ṛddhi is often used interchangeably in Buddhism.

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Not to be confused with the African Siddi or the Karnataka Siddi.

In Indian religions, Siddhis (Sanskrit: सिद्धि *siddhi*; fulfillment, accomplishment) are material, paranormal, supernatural, or otherwise magical powers, abilities, and attainments that are the products of yogic advancement through *sādhana*s such as meditation and yoga.[1] The term *ṛddhi* (Pali: *iddhi*, "psychic powers") is often used interchangeably in Buddhism.

## Etymology

Siddhi is a Sanskrit noun which can be translated as "knowledge", "accomplishment", "attainment", or "success".[2]

## Method

The Visuddhimagga is one of the texts to give explicit details about how spiritual masters were thought to actually manifest supernormal abilities.[3] It states that abilities such as flying through the air, walking through solid obstructions, diving into the ground, walking on water and so forth are achieved through changing one element, such as earth, into another element, such as air.[3] The individual must master kasina meditation before this is possible.[3] Dīpa Ma, who trained via the Visuddhimagga, claimed to have these abilities, but her claim was never independently verified.[4]

## Usage in Hinduism

Part of a series on  
Hinduism

## Hindu Mythology

Origins  
Sampradaya (traditions)  
Deities  
Concepts  
Practices  
Philosophical schools  
Gurus, Rishi, philosophers  
Texts  
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In the Panchatantra, an ancient Indian collection of moral fables, siddhi may be the term for any unusual skill or faculty or capability.[citation needed]

### Patanjali's Yoga Sutras

In Patañjali's Yoga Sutras IV.1 it is stated, Janma auṣadhi mantra tapaḥ samādhijāḥ siddhayaḥ, "Accomplishments may be attained through birth, the use of herbs, incantations, self-discipline or samadhi".[5] Patanjali discusses siddhi in Vibhuti Pada (third chapter) and commentators like Vyasa consider it as a by-product of yogic path due to mastery over prakriti. Verse III.37 warns that siddhis serve as milestones or distractions rather than as the ultimate goal. Verse III.55 further explains that liberation (kaivalya) is achieved through discriminative knowledge, not through mystic powers. Once ignorance is removed through such knowledge, the cycle of rebirth (samsara) ceases.[6]

### Eight classical siddhis

Ganesha with the personified Ashta-Siddhi The Ashtasiddhi are associated with Ganesha. – painting by Raja Ravi Varma (1848–1906)

According to different sources, below are the eight classical siddhis (Ashta Siddhi) or eight great perfections:[7][8]

Aṇimā: the ability to reduce one's body to the size of an atom.

Mahimā: the ability to expand one's body to an infinitely large size.

Laghimā: the ability to become weightless or lighter than air.

Garimā: the ability to become heavy or dense.

Prāpti: the ability to access any place in the world.

Prākāmya: the ability to realize whatever one desires.

Īśitva: the ability to control all material elements or natural forces.

Vaśitva: the ability to force influence upon anyone.

In ISKCON texts, the ability to become heavy or dense (Garimā) is named Mahimā, which (the ability to expand one's body) gets replaced with Kāmāvasāyitā, the ability to take any shape or form one may even whimsically desire.[9]

### Shaivism

In Shaivism, siddhis are defined as "Extraordinary powers of the soul, developed through consistent meditation and often uncomfortable and grueling tapas, or awakened naturally through spiritual maturity and yogic sādhanā." [10]

### Vaishnavism

In Vaishnavism, the term siddhi is used in the Sarva-darśana-saṅgraha of Madhvacharya (1238–1317), the founder of Dvaita (dualist) philosophy.

Five siddhis, according to Vaishnava doctrine

In the Bhagavata Purana, the five siddhis brought on by yoga and meditation are:

trikārajñatvam: knowing the past, present and future.

advandvam: tolerance of heat, cold and other dualities.

para citta ādi abhijñatā: knowing the minds of others, etc.

agni arka ambu viṣa ādīnām pratiṣṭambhaḥ: checking the influence of fire, sun, water, poison, etc.

aparājayah: remaining unconquered by others.[11]

Ten secondary siddhis, according to Vaishnava doctrine

In the Bhagavata Purana, Krishna describes the ten secondary siddhis:[citation needed]

anūrmimattvam: Being undisturbed by hunger, thirst, and other bodily appetites.

dūraśravaṇa: Hearing things far away.

dūradarśanam: Seeing things far away.

manojavah: Moving the body wherever thought goes (teleportation/astral projection).

kāmarūpam: Assuming any form desired.

parakāya praveśanam: Entering the bodies of others.

svachanda mṛtyuh: Dying when one desires.

devānām saha krīḍā anudarśanam: Witnessing and participating in the pastimes of the gods.

yathā saṅkalpa saṁsiddhiḥ: Perfect accomplishment of one's determination.

ājñāpratihatā gatiḥ: Orders or commands being unimpeded.[12]

Samkhya philosophy

In the Samkhyakarika and Tattvasamasa, there are references to the attainment of eight siddhis by which "one becomes free of the pain of ignorance, one gains knowledge, and experiences bliss". The eight siddhis hinted at by Kapila in the Tattvasamasa are, as explained in verse 51 of the Samkhyakarika:[13]

Ūha: based on the samskaras (karmic imprints) of previous births, the attainment of knowledge about the twenty-four tattvas gained by examining the determinable and indeterminable, conscious and non-conscious constituents of creation.

Śabda: knowledge gained by associating with an enlightened person (Guru – upadesha).

Adhyayana: knowledge gained through study of the Vedas and other standard ancillary texts.

Suhṛtprāpti: knowledge gained from a kind-hearted person, while engaged in the spread of knowledge.

Dānā: knowledge gained regardless of one's own needs while attending to the requirements of those engaged in the search of the highest truth.

Ādhyātmika-duḥkhabighāta: freedom from pain, disappointment, etc. that may arise due to lack of spiritual, metaphysical, mystic knowledge and experience.

Ādhibhautika-duḥkhabighāta: freedom from pain etc. arising from possessing and being attached to various materialistic gains.

Ādhidaivika-duḥkhabighāta: freedom from pain etc. caused by fate or due to reliance on fate.

It is believed that the attainment of these eight siddhis renders one free of the pain of

ignorance and gives one knowledge and bliss.

Hindu deities associated with gaining siddhi

Ganesha, Hanuman, various forms of Devi, Vishnu and various other deities are popularly seen as the keepers of siddhis, with the ability to grant them to the worshipper.

[14] The attainment of such siddhis is a more pronounced goal in Shaivism. Notably, Hanuman is an incarnation of Shiva, and Ganesh is His son. The last day of Navaratri, the celebration of the pastimes and forms of Goddess Parvati, the wife of Shiva, is for Siddhidhatri, quite literally "She who has the power to grant the Siddhis". According to the lore of the Puranas, it becomes apparent that Shiva is in fact the holder and releaser of such important and powerful abilities.[citation needed]

Usage in Sikhism

In Sikhism, siddhi means "insight". "Eight Siddhis" is a term used for insight of the eight qualities of Nirankar or a.k.a. Akal Purakh mentioned in the Mul Mantar in the Guru Granth Sahib. God has eight qualities: Ek Onkar, Satnam, Kartapurakh, Nirbhao, Nirvair, AkaalMurat, Ajooni and Svaibhang. The one who has insight into these qualities is called Sidh or Gurmukh.[citation needed]

Ek Onkar: There is one formless God

Satnam: God is True, His remembrance is true

Kartapurakh: God alone is creator

Nirbhao: God is fearless

Nirvair: God has no enmity with anyone

Akaal Murat: God is eternal, beyond time

Ajooni Svaibhang: God is beyond the cycle of birth and death, God is svayambhu, Self-Existent

Gurparasad: God is attained by the Grace of the True Guru

Sidh means the one who has mastered his self.

Usage in Vajrayana Buddhism

In Tantric Buddhism, siddhi specifically refers to the acquisition of supernatural powers by psychic or magical means or the supposed faculty so acquired. These powers include items such as clairvoyance, levitation, bilocation and astral projection, materialization, and having access to memories from past lives.[citation needed]

See also

Abhijñā

Iddhi

Karamat

Pranahuti

Notes

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[9 Principles of Stoicism which will Improve your Life](#)

Stoicism is an ancient Greek and Roman philosophy focused on living a virtuous, flourishing life (eudaimonia) by developing inner resilience, wisdom, and self-control, emphasizing what's within our power (our responses) versus external events, and striving for virtues like courage, justice, temperance, and wisdom to achieve tranquility and live in harmony with nature. It offers practical tools to manage negative emotions, find purpose, and handle adversity by focusing on reason and one's character, rather than external outcomes.

[Core Principles](#)

**Focus on Control:** Distinguish between what you can control (your thoughts, actions, judgments) and what you can't (external events, other people).

**Virtue as the Sole Good:** True happiness comes from living virtuously (wisdom, justice, courage, temperance), making external things like wealth or health indifferent.

**Living in Accordance with Nature:** The universe is rational, so living wisely means understanding and accepting your role in the natural order.

**\*\* Amor Fati (Love of Fate)\*\*:** Accepting and even embracing everything that happens as necessary and part of a greater, rational plan.

**\*\* Dichotomy of Control\*\*:** A central practice of focusing only on your internal responses, as seen in the writings of Epictetus.

[Key Virtues](#)

**Wisdom:** Practical knowledge and good judgment.

**Justice:** Fairness, honesty, and ethical treatment of others.

**Courage:** Bravery, fortitude, and perseverance.

**Temperance:** Self-discipline, moderation, and control over desires.

## Major Figures

Zeno of Citium: Founder of Stoicism in Athens.

Seneca: Roman statesman, playwright, and philosopher.

Epictetus: Former slave, influential teacher of Stoic ethics.

Marcus Aurelius: Roman Emperor and author of Meditations.

## Modern Relevance

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A bust of Zeno of Citium, considered the founder of Stoicism

Stoicism is an ancient Greek and then Roman philosophy of the Hellenistic and Roman Imperial periods.[1] The Stoics believed that the universe operated according to reason, or logos,[2] providing a unified account of the world, constructed from ideals of rational discourse, monistic physics, and naturalistic ethics.[3] These three ideals constitute virtue, which is necessary for the Stoic goal of 'living a well-reasoned life'.[4]

Stoic logic focuses on highly intentional reasoning through propositions, arguments, and the differentiation between truth and falsehood. Philosophical discourse is paramount in Stoicism, including the view that the mind is in rational dialogue with itself.[4] Stoic ethics centers on virtue as the highest good, cultivating emotional self-control, a calm problem-solving state of mind, and rational judgment to attain lifelong flourishing (eudaimonia). At the same time, passions, anxieties, and insecurities are viewed as misguided reactions that ought to be controlled through self-disciplined practice. Of all the schools of ancient Western philosophy, Stoicism made the greatest claim to being utterly systematic.[5]

Stoicism was founded in the ancient Agora of Athens by Zeno of Citium around 300 BCE, and flourished throughout the Greco-Roman world until the 3rd century CE. Stoicism emerged from the Cynic tradition and was popularized through public teaching at the Stoa Poikile, a painted colonnade. Among its adherents was Roman Emperor Marcus Aurelius.

Along with Aristotelian term logic, the system of propositional logic developed by the Stoics was one of the two great systems of logic in the classical world. It was largely built and shaped by Chrysippus, the third head of the Stoic school in the 3rd century BCE. Chrysippus's logic differed from term logic because it was based on the analysis of propositions rather than terms. Stoicism experienced a decline after Christianity became the state religion in the 4th century CE, although Gnosticism lingered and incorporated pure elements of Stoicism and Platonism.

Since then, it has seen revivals, notably in the Renaissance (Neostoicism) and in the contemporary era.[6] Its influence extended to Roman thinkers like Seneca and Epictetus and later influenced Christianity and the Renaissance Neostoicism movement. Stoicism shaped subsequent developments in logic and inspired modern cognitive therapies.

## History

See also: List of Stoic philosophers

The name Stoicism derives from the Stoa Poikile (Ancient Greek: ἡ ποικίλη στοά), or "painted porch", a colonnade decorated with mythic and historical battle scenes on the north side of the Agora in Athens where Zeno of Citium and his followers gathered to discuss their ideas, near the end of the fourth century BCE.[7] Unlike the Epicureans, Zeno chose to teach his philosophy in a public space. Stoicism was originally known as Zenonism. However, this name was soon dropped, probably because the Stoics did not consider their founders to be perfectly wise and to avoid the risk of the philosophy becoming a cult of personality.[8]

Zeno's ideas developed from those of the Cynics (brought to him by Crates of Thebes), whose founding father, Antisthenes, had been a disciple of Socrates. Zeno's most influential successor was Chrysippus, who followed Cleanthes as leader of the school, and was responsible for molding what is now called Stoicism.[9] Stoicism became the foremost popular philosophy among the educated elite in the Hellenistic world and the

Roman Empire[10] to the point where, in the words of Gilbert Murray, "nearly all the successors of Alexander [...] professed themselves Stoics".[11] Later Roman Stoics focused on promoting a life in harmony within the universe, within which we are active participants.

Scholars[12] usually divide the history of Stoicism into three phases: the Early Stoa, from Zeno's founding to Antipater; the Middle Stoa, including Panaetius and Posidonius; and the Late Stoa, including Musonius Rufus, Seneca, Epictetus, and Marcus Aurelius. No complete works survived from the first two phases of Stoicism. Only Roman texts from the Late Stoa survived.[13]

Logic

See also: History of logic

Chrysippus, the third leader of the Stoic school, wrote more than 300 books on logic. His works were lost, but an outline of his logical system may be reconstructed from fragments and testimony.

For the Stoics, logic (logike) was the part of philosophy which examined reason (logos). [14] To achieve a happy life—a life worth living—requires logical thought.[2] The Stoics held that an understanding of ethics was impossible without logic.[15] In the words of Inwood, the Stoics believed that:[16]

Logic helps a person see what is the case, reason effectively about practical affairs, stand his or her ground amid confusion, differentiate the certain from the probable, and so forth.

To the Stoics, logic was a wide field of knowledge which included the study of language, grammar, rhetoric and epistemology.[14] However, all of these fields were interrelated, and the Stoics developed their logic (or "dialectic") within the context of their theory of language and epistemology.[17]

The Stoic tradition of logic originated in the 4th-century BCE in a different school of philosophy known as the Megarian school.[18] It was two dialecticians of this school, Diodorus Cronus and his pupil Philo, who developed their own theories of modalities and of conditional propositions.[18] The founder of Stoicism, Zeno of Citium, studied under the Megarians, and he was said to have been a fellow pupil with Philo.[19]

However, the outstanding figure in the development of Stoic logic was Chrysippus of Soli (c. 279 – c. 206 BCE), the third head of the Stoic school.[18] Chrysippus shaped much of Stoic logic as we know it, creating a system of propositional logic.[20] The logical writings by Chrysippus are, however, almost entirely lost,[18] instead his system has to be reconstructed from the partial and incomplete accounts preserved in the works of later authors.[19]

## Assertibles

The smallest unit in Stoic logic is an assertible (axiomata), a proposition which is either true or false and which either affirms or denies.[21] Examples of assertibles include "it is night", "it is raining this afternoon", and "no one is walking." [22][23] Assertibles have a truth-value such that they are only true or false depending on when it was expressed (e.g. the assertible "it is night" will only be true if it is true that it is night).[24] The Stoics catalogued these simple assertibles according to whether they are affirmative or negative, and whether they are definite or indefinite (or both).[25]

## Compound assertibles

### Logical connectives

#### Name Example

Conditional if it is day, it is light

Conjunction it is day and light

Disjunction either it is day or night

Pseudo-conditional since it is day, it is light

Causal because it is day, it is light

Comparative more likely it is day than night

Compound assertibles can be built up from simple ones through the use of logical connectives, which examine choice and consequence such as "if ... then", "either ... or", and "not both".[15][26] Chrysippus seems to have been responsible for introducing the three main types of connectives: the conditional (if), conjunctive (and), and disjunctive (or).[27] A typical conditional takes the form of "if p then q";[28] whereas a conjunction takes the form of "both p and q";[28] and a disjunction takes the form of "either p or q". [29] The or they used is exclusive, unlike the inclusive or generally used in modern formal logic.[30] These connectives are combined with the use of not for negation.[31] Thus the conditional can take the following four forms:[32] 1) "If p, then q" 2) "If not p, then q" 3) "If p, then not q" 4) "If not p, then not q." Later Stoics added more connectives: the pseudo-conditional took the form of "since p then q"; and the causal assertible took the form of "because p then q".[a] There was also a comparative (or dissertive): "more/less (likely) p than q".[33]

## Modal assertibles

Assertibles can also be distinguished by their modal properties[b]—whether they are possible, impossible, necessary, or non-necessary.[34] In this, the Stoics were building on an earlier Megarian debate initiated by Diodorus Cronus.[34] Diodorus had defined possibility in a way which seemed to adopt a form of fatalism.[35] Diodorus defined possible as "that which either is or will be true".[36] Thus, there are no forever unrealised possibilities, whatever is possible is or one day will be true.[35] His pupil Philo, rejecting this, defined possible as "that which is capable of being true by the proposition's own nature",[36] thus a statement like "this piece of wood can burn" is possible, even if it spent its entire existence on the bottom of the ocean.[37] Chrysippus, on the other hand, was a causal determinist: he thought that true causes inevitably give rise to their effects and that all things arise in this way.[38] But he was not a logical

determinist or fatalist: he wanted to distinguish between possible and necessary truths. [38] Thus, he took a middle position between Diodorus and Philo, combining elements of both their modal systems.[39] Chrysippus's set of Stoic modal definitions was as follows:[40]

## Modal definitions

### Name Definition

possible An assertible which can become true and is not hindered by external things from becoming true

impossible An assertible which cannot become true or which can become true but is hindered by external things from becoming true

necessary An assertible which (when true) cannot become false or which can become false but is hindered by external things from becoming false

non-necessary An assertible which can become false and is not hindered by external things from becoming false

### Arguments

In Stoic logic, an argument is defined as a compound or system of premises and a conclusion.[41] A typical Stoic syllogism is: "If it is day, it is light; It is day; Therefore it is light".[41] It has a non-simple assertible for the first premise ("If it is day, it is light") and a simple assertible for the second premise ("It is day").[41] Stoic logic also uses variables that stand for propositions to generalize arguments of the same form.[42] In more general terms this argument would be:[21] "If p, then q; p; Therefore q."

## Indemonstrable arguments

Chrysippus listed five basic argument forms, called indemonstrables,[43][c] which all other arguments are reducible to:[44]

## Indemonstrable arguments

### Name[d] Description Example

Modus ponens If p, then q. p. Therefore, q. If it is day, it is light. It is day. Therefore, it is light.

Modus tollens If p, then q. Not q. Therefore, not p. If it is day, it is light. It is not light. Therefore, it is not day.

Modus ponendo tollens Not both p and q. p. Therefore, not q. It is not both day and night. It is day. Therefore, it is not night.

Strong modus tollendo ponens Either p or q. Not p. Therefore, q. It is either day or night. It is not day. Therefore, it is night.

Strong modus ponendo tollens Either p or q. p. Therefore, not q. It is either day or night. It is day. Therefore, it is not night.

There can be many variations of these five indemonstrable arguments.[45] For example the assertibles in the premises can be more complex, and the following syllogism is a valid example of the second indemonstrable (modus tollens):[32] "if both p and q, then r; not r; therefore not: both p and q" Similarly one can incorporate negation into these arguments.[32] A valid example of the fourth indemonstrable (strong modus tollendo ponens or exclusive disjunctive syllogism) is:[46] "either [not p] or q; not [not p];

therefore q" which, incorporating the principle of double negation, is equivalent to:[46]  
"either [not p] or q; p; therefore q."

### Complex arguments

However, many other arguments are not expressed in the form of the five indemonstrables, and the task is to show how they can be reduced to one of the five types.[31] A simple example of Stoic reduction is reported by Sextus Empiricus:[47] "if both p and q, then r; not r; but also p; Therefore not q" This can be reduced to two separate indemonstrable arguments of the second and third type:[48] "if both p and q, then r; not r; therefore not: both p and q; not: both p and q; p; therefore not q"

The Stoics stated that complex syllogisms could be reduced to the indemonstrables through the use of four ground rules or themata.[49] Of these four themata, only two have survived.[50][36] One, the so-called first thema, was a rule of antilogism: "When from two [assertibles] a third follows, then from either of them together with the contradictory of the conclusion the contradictory of the other follows." [51][36] The other, the third thema, was a cut rule by which chain syllogisms could be reduced to simple syllogisms.[e] The importance of these rules is not altogether clear.[52] In the 2nd-century BCE, Antipater of Tarsus is said to have introduced a simpler method involving the use of fewer themata, although few details survive concerning this.[52]

### Paradoxes

Why should not the philosopher develop his own reason? You turn to vessels of crystal, I to the syllogism called The Liar; you to myrrhine glassware, I to the syllogism called The Denyer.

—Epictetus, Discourses, iii.9.20

In addition to describing which inferences are valid ones, part of a Stoic's logical training was the enumeration and refutation of false arguments, including the identification of paradoxes,[53] which represented a challenge to the basic logical notions of the Stoics, such as truth or falsehood.[54] One paradox studied by Chrysippus, known as the Liar paradox, asked "A man says he is lying; is what he says true or false?"—if the man says something true then it seems he is lying, but if he is lying then he is not saying something true, and so on. Another, known as the Sorites paradox or "Heap", asked "How many grains of wheat do you need before you get a heap?"[55] It was said to challenge the idea of true or false by offering up the possibility of vagueness.[55] In mastering these paradoxes, the Stoics hoped to cultivate their rational powers,[56] to more easily enable ethical reflection, permit secure and confident arguing, and lead themselves to truth.[57]

### Categories

The Stoics held that all beings (ὄντα)—although not all things (τινά)—are material.[58] Besides the existing beings, they admitted four incorporeals (asomata): time, place, void, and sayable.[59] They were held to be just 'subsisting' while such a status was denied to universals.[60] Thus, they accepted Anaxagoras's idea (as did Aristotle) that if

an object is hot, it is because some part of a universal heat body had entered the object. But, unlike Aristotle, they extended the idea to cover all chance incidents. Thus, if an object is red, it would be because some part of a universal red body had entered the object.

They held that there were four categories:

Substance (ὕποκειμενον): The primary matter, formless substance, (ousia) that things are made of

Quality (ποιόν): The way matter is organized to form an individual object; in Stoic physics, a physical ingredient (pneuma: air or breath), which informs the matter

Somehow disposed (πῶς ἔχον): Particular characteristics, not present within the object, such as size, shape, action, and posture

Somehow disposed in relation to something (πρὸς τι πῶς ἔχον): Characteristics related to other phenomena, such as the position of an object within time and space relative to other objects

A simple example of the Stoic categories in use is provided by Jacques Brunschwig:

I am a certain lump of matter, and thereby a substance, an existent something (and thus far that is all); I am a man, and this individual man that I am, and thereby qualified by a common quality and a peculiar one; I am sitting or standing, disposed in a certain way; I am the father of my children, the fellow citizen of my fellow citizens, disposed in a certain way in relation to something else.[61]

## Epistemology

According to the Stoics, knowledge can be attained through the application of reason to the impressions (phantasiai) received by the mind through the senses. The mind can judge (συγκατάθεσις, synkatathesis)—approve or reject—an impression, enabling it to distinguish a true representation of reality from one that is false. Some impressions can be assented to immediately, but others can achieve only varying degrees of hesitant approval, which can be labeled belief or opinion (doxa). It is only through reason that we gain clear comprehension and conviction (katalepsis). Certainty and true knowledge (episteme), achievable by the Stoic sage, can be attained only by verifying the conviction with the expertise of one's peers and the collective judgment of humankind.

## Physics

According to the Stoics, the Universe is a material reasoning substance (logos), which was divided into two classes: the active and the passive.[62] The passive substance is matter itself, while the active substance is an intelligent aether or primordial fire, which acts on the passive matter, the logos or anima mundi pervading and animating the entire Universe. It was conceived as material and is usually identified with God or Nature. The Stoics also referred to the seminal reason ("logos spermatikos"), or the law of generation in the Universe, which was the principle of the active reason working in inanimate matter. Humans, too, each possess a portion of the divine logos, which is the primordial Fire and reason that controls and sustains the Universe.[63] Everything is



subject to the laws of Fate, for the Universe acts according to its own nature, and the nature of the passive matter it governs.

Stoicism does not posit a beginning or end to the Universe.[64] The current Universe is a phase in the present cycle, preceded by an infinite number of Universes, doomed to be destroyed ("Ekpyrosis", conflagration) and re-created again,[65] and to be followed by another infinite number of Universes.

## Ethics

A bust of Seneca, a Stoic philosopher from the Roman Empire who served as an adviser to Nero

Alongside Aristotle's ethics, the Stoic tradition forms one of the major founding approaches to virtue ethics.[66] The Stoics believed that the practice of virtue is enough to achieve eudaimonia: a well-lived life. The Stoics identified the path to achieving it with a life spent practicing the four cardinal virtues in everyday life — prudence, fortitude, temperance, and justice — as well as living in accordance with nature.

The Stoics are especially known for teaching that "virtue is the only good" for human beings, and that external things, such as health, wealth, and pleasure, are not good or bad in themselves (adiaphora) but have value as "material for virtue to act upon". Many Stoics —such as Seneca and Epictetus — emphasized that because "virtue is sufficient for happiness", a sage would be emotionally resilient to misfortune. The Stoics also believed that certain destructive emotions resulted from errors of judgment, and people should aim to maintain a will (called prohairesis) that is "in accordance with nature". Because of this, the Stoics thought the best indication of an individual's philosophy was not what a person said but how the person behaved.[67]

The Stoics outlined that our own actions, thoughts, and reactions are within our control. These suggest a space that is up to us or within our power. Stoic ethics involves improving the individual's ethical and moral well-being: "Virtue consists in a will that is in agreement with Nature." [68] The foundation of Stoic ethics is that good lies in the state of the soul itself, in wisdom and self-control. For the Stoics, reason meant using logic and understanding the processes of nature—the logos or universal reason, inherent in all things, as a means of overcoming destructive emotions.[69] This principle also applies to the realm of interpersonal relationships; "to be free from anger, envy, and jealousy", [70] and even to accept slaves as equals of others because all are products of nature.[71] The Stoic ethic espouses a deterministic perspective; in regard to those who lack Stoic virtue, Cleanthes once opined that the wicked person is "like a dog tied to a cart, and compelled to go wherever it goes". [68] A Stoic of virtue, by contrast, would amend one's will to suit the world and remain, in the words of Epictetus, "sick and yet happy, in peril and yet happy, dying and yet happy, in exile and happy, in disgrace and happy", [70] thus positing a "completely autonomous" individual will, and at the same time a universe that is "a rigidly deterministic single whole".

## Passions

For the Stoic Chrysippus, the passions are evaluative judgements.[72] A passion is a disturbing and misleading force in the mind which occurs because of a failure to reason correctly.[73] The Stoics used the word to discuss many common emotions such as anger, fear and excessive joy.[73] Incorrect judgment as to a present good gives rise to delight, while lust is a wrong estimate about the future.[73] Unreal imaginings of evil cause distress about the present, or fear for the future.[74] The ideal Stoic would instead measure things at their real value,[74] and see that the passions are not natural.[74] To be free of the passions is to have a happiness which is self-contained.[74] There would be nothing to fear—for unreason is the only evil; no cause for anger—for others cannot harm you.[74]

The Stoics arranged the passions under four headings: distress, pleasure, fear, and lust. [75] One report of the Stoic definitions of these passions appears in the treatise *On Passions* by Chrysippus (trans. Long & Sedley, pg. 411, modified):

Distress (*lupē*): Distress is an irrational contraction, or a fresh opinion that something bad is present, at which people think it right to be depressed.

Fear (*phobos*): Fear is an irrational aversion, or avoidance of an expected danger.

Lust (*epithumia*): Lust is an irrational desire, or pursuit of an expected good but in reality bad.

Delight (*hēdonē*): Delight is an irrational swelling, or a fresh opinion that something good is present, at which people think it right to be elated.

|      | Present  | Future |
|------|----------|--------|
| Good | Delight  | Lust   |
| Evil | Distress | Fear   |

Two of these passions (distress and delight) refer to emotions currently present, and two of these (fear and lust) refer to emotions directed at the future.[75] Thus there are just two states directed at the prospect of good and evil, but subdivided as to whether they are present or future:[76] Numerous subdivisions of the same class were brought under the head of the separate passions:[77]

Distress: Envy, Rivalry, Jealousy, Compassion, Anxiety, Mourning, Sadness, Troubling, Grief, Lamenting, Depression, Vexation, Despondency.

Fear: Sluggishness, Shame, Fright, Timidity, Consternation, Pusillanimity, Bewilderment, and Faintheartedness.

Lust: Anger, Rage, Hatred, Enmity, Wrath, Greed, and Longing.

Delight: Malice, Rapture, and Ostentation.

The wise person (*sophos*) is someone who is free from the passions (*apatheia* or *impassivity*[78][79]). Instead, the sage experiences good feelings (*eupatheia*) which are clear-headed.[80] These emotional impulses are not excessive, but nor are they diminished emotions.[81][82] Instead they are the correct rational emotions.[82] The Stoics listed the good-feelings under the headings of joy (*chara*), wish (*boulesis*), and caution (*eulabeia*).[83] Thus if something is present which is a genuine good, then the wise person experiences an uplift in the soul—joy (*chara*).[84] The Stoics also

subdivided the good-feelings:[85]

Joy: Enjoyment, Cheerfulness, Good spirits

Wish: Good intent, Goodwill, Welcoming, Cherishing, Love

Caution: Moral shame, Reverence

Suicide

The Stoics considered suicide permissible for the wise person in circumstances that might prevent them from living a virtuous life,[86] such as if they fell victim to severe pain or disease,[86] but otherwise, suicide would usually be seen as a rejection of one's social duty.[87] For example, Plutarch reports that accepting life under tyranny would have compromised Cato's self-consistency (*constantia*) as a Stoic and impaired his freedom to make the honorable moral choices.[88]

Legacy

Marcus Aurelius, the Stoic Roman emperor

For around five hundred years, Stoic logic was one of the two great systems of logic.[89] The logic of Chrysippus was discussed alongside that of Aristotle, and it may well have been more prominent since Stoicism was the dominant philosophical school.[90] From a modern perspective, Aristotle's term logic and the Stoic logic of propositions appear complementary, but they were sometimes regarded as rival systems.[31]

Neoplatonism

In late antiquity, the Stoic school fell into decline, and the last pagan philosophical school, the Neoplatonists, adopted Aristotle's logic for their own.[91] Plotinus had criticized both Aristotle's *Categories* and those of the Stoics; his student Porphyry, however, defended Aristotle's scheme. He justified this by arguing that they should be interpreted strictly as expressions, rather than as metaphysical realities. The approach can be justified, at least in part, by Aristotle's own words in *The Categories*. Boethius' acceptance of Porphyry's interpretation led to their being accepted by Scholastic philosophy.[citation needed] As a result the Stoic writings on logic did not survive, and only elements of Stoic logic made their way into the logical writings Boethius and other later commentators, transmitting confused parts of Stoic logic to the Middle Ages.[90] Propositional logic was redeveloped by Peter Abelard in the 12th century, but by the mid-15th century the only logic which was being studied was a simplified version of Aristotle's.[92] Knowledge about Stoic logic as a system was lost until the 20th century, when logicians familiar with the modern propositional calculus reappraised the ancient accounts of it.

Christianity

The Fathers of the Church regarded Stoicism as a "pagan philosophy";[93][94] nonetheless, early Christian writers used some of the central philosophical concepts of Stoicism. Examples include the terms "logos", "virtue", "Spirit", and "conscience".[64] Like Stoicism, Christianity asserts an inner freedom in the face of the external world, a belief in human kinship with Nature or God, a sense of the innate depravity—or

"persistent evil"—of humankind,[64] and the futility and temporary nature of worldly possessions and attachments. Both encourage equanimity with respect to the passions and inferior emotions, such as lust and envy, so that the higher possibilities of one's humanity can be awakened and developed. Stoic influence can also be seen in the works of Ambrose of Milan, Marcus Minucius Felix, and Tertullian.[95]

## Neostoicism

Main article: Neostoicism

Neostoicism was a philosophical movement that arose in the late 16th century from the works of the Renaissance humanist Justus Lipsius, who sought to combine the beliefs of Stoicism and Christianity.[78] The project of neostoicism has been described as an attempt by Lipsius to construct "a secular ethics based on Roman Stoic philosophy." He did not endorse religious toleration in an unqualified way: hence the importance of a morality not tied to religion.[96] The work of Guillaume du Vair, *Traité de la Constance* (1594), was another important influence in the neo-stoic movement. Where Lipsius had mainly based his work on the writings of Seneca, du Vair emphasized Epictetus.[78] Pierre Charron came to a neo-stoic position through the impact of the French Wars of Religion. He made a complete separation of morality and religion.[97]

## Reappraisal of Stoic logic

In the 18th century, Immanuel Kant declared that "since Aristotle ... logic has not been able to advance a single step, and is thus to all appearance a closed and complete body of doctrine." [98] To 19th-century historians, who believed that Hellenistic philosophy represented a decline from that of Plato and Aristotle, Stoic logic was seen with contempt.[99] Carl Prantl thought that Stoic logic was "dullness, triviality, and scholastic quibbling" and he welcomed the fact that the works of Chrysippus were no longer extant. [100]

Although developments in modern logic that parallel Stoic logic began in the middle of the 19th century with the work of George Boole and Augustus De Morgan,[92] Stoic logic itself was only reappraised in the 20th-century,[100] beginning with the work of Polish logician Jan Łukasiewicz[100] and Benson Mates.[100] According to Susanne Bobzien, "The many close similarities between Chrysippus' philosophical logic and that of Gottlob Frege are especially striking".[101]

What we see as a result is a close similarity between [these] methods of reasoning and the behaviour of digital computers. ... The code happens to come from the nineteenth-century logician and mathematician George Boole, whose aim was to codify the relations studied much earlier by Chrysippus (albeit with greater abstraction and sophistication). Later generations built on Boole's insights ... but the logic that made it all possible was the interconnected logic of an interconnected universe, discovered by the ancient Chrysippus, who labored long ago under an old Athenian stoa.[102]

## Contemporary stoicism

Contemporary usage defines a stoic as a "person who represses feelings or endures

patiently".[103] The Stanford Encyclopedia of Philosophy's entry on Stoicism notes: "the sense of the English adjective 'stoical' is not utterly misleading with regard to its philosophical origins".[104]

Contemporary Stoicism draws from the late 20th- and early 21st-century spike in publications of scholarly works on ancient Stoicism. The revival of Stoicism in the 20th century can be traced to the publication of *Problems in Stoicism* by A. A. Long in 1971. [105]

According to philosopher Pierre Hadot, philosophy for a Stoic is not just a set of beliefs or ethical claims; it is a way of life involving constant practice and training (or "askēsis"), an active process of constant practice and self-reminder. Epictetus, in his *Discourses*, distinguished between three types of act: judgment, desire, and inclination,[106] which Hadot identifies these three acts with logic, physics, and ethics, respectively.[107] Hadot writes that in the *Meditations*, "Each maxim develops either one of these very characteristic *topoi* [i.e., acts], or two of them or three of them." [108]

#### Psychology and psychotherapy

Stoic philosophy was the original philosophical inspiration for modern cognitive psychotherapy, particularly as mediated by Albert Ellis' rational emotive behavior therapy (REBT),[109] the major precursor of cognitive behavioral therapy (CBT). The original cognitive therapy treatment manual for depression by Aaron T. Beck et al. states, "The philosophical origins of cognitive therapy can be traced back to the Stoic philosophers". [110] A well-known quotation from *Enchiridion* of Epictetus was taught to most clients during the initial session of traditional REBT by Ellis and his followers: "It's not the events that upset us, but our judgments about the events." [111]

See also

Amor fati – Latin phrase meaning "love of fate"

#### Notes

- a. ^ The minimum requirement for a conditional is that the consequent follows from the antecedent.[28] The pseudo-conditional adds that the antecedent must also be true. The causal assertible adds an asymmetry rule such that if p is the cause/reason for q, then q cannot be the cause/reason for p. Bobzien 1999, p. 109
- b. ^ "Stoic modal logic is not a logic of modal propositions (e.g., propositions of the type 'It is possible that it is day' ...) ... instead, their modal theory was about non-modalized propositions like 'It is day', insofar as they are possible, necessary, and so forth." Bobzien 1999, p. 117
- c. ^ Most of these argument forms had already been discussed by Theophrastus, but: "It is plain that even if Theophrastus discussed (1)–(5), he did not anticipate Chrysippus' achievement. ... his Aristotelian approach to the study and organization of argument-forms would have given his discussion of mixed hypothetical syllogisms an utterly unStoical aspect." Barnes 1999, p. 83
- d. ^ These Latin names date from the Middle Ages. Shenefelt & White 2013, p. 288
- e. ^ For a brief summary of these themata see Susanne Bobzien's Ancient Logic article

for the Stanford Encyclopedia of Philosophy. For a detailed (and technical) analysis of the themata, including a tentative reconstruction of the two lost ones, see Bobzien 1999, pp. 137–148, Long & Sedley 1987, §36 HIJ.

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This article is about the philosophical concept. For the 2014 book by Rajiv Malhotra, see *Indra's Net* (book). For the geometry book, see *Indra's Pearls* (book).

Indra's net (also called Indra's jewels or Indra's pearls, Sanskrit *Indrajāla*, Chinese: 因陀羅網) is a metaphor used to illustrate the concepts of Śūnyatā (emptiness),[1] *pratītyasamutpāda* (dependent origination),[2] and interpenetration[3] in Buddhist philosophy.

The metaphor's earliest known reference is found in the *Atharva Veda*. It was further developed by the Mahayana school in the 3rd century *Buddhāvataṃsaka Sūtra* and later by the Huayan school between the 6th and 8th centuries.[1]

In the *Buddhāvataṃsaka Sūtra*

A 3d rendering depicting the Indra's net metaphor

Main articles: *Avatamsaka Sutra* and Huayan school

"Indra's net" is an infinitely-large net owned by the Vedic deva Indra, which hangs over his palace on Mount Meru, the axis mundi of Buddhist and Hindu cosmology. In East Asian Buddhism, Indra's net is considered as having a multifaceted jewel at each vertex, with each jewel being reflected in all of the other jewels.[4] In the Huayan school of Chinese Buddhism, which follows the *Buddhāvataṃsaka Sūtra*, the image of "Indra's net" is used to describe the interconnectedness or "perfect interfusion" (*yuánróng*, 圓融) of all phenomena in the universe.[4][5]

Francis H. Cook describes Indra's net thus:

Far away in the heavenly abode of the great god Indra, there is a wonderful net which has been hung by some cunning artificer in such a manner that it stretches out infinitely in all directions. In accordance with the extravagant tastes of deities, the artificer has hung a single glittering jewel in each "eye" of the net, and since the net itself is infinite in dimension, the jewels are infinite in number. There hang the jewels, glittering "like" stars in the first magnitude, a wonderful sight to behold. If we now arbitrarily select one of these jewels for inspection and look closely at it, we will discover that in its polished surface there are reflected all the other jewels in the net, infinite in number. Not only that, but each of the jewels reflected in this one jewel is also reflecting all the other jewels, so that there is an infinite reflecting process occurring.[6]

The Buddha in the *Buddhāvataṃsaka Sūtra*'s 30th book states a similar idea:

If untold Buddha-lands are reduced to atoms,

In one atom are untold lands, and as in one, so in each.

The atoms to which these Buddha-lands are reduced in an instant are unspeakable,

And so are the atoms of continuous reduction moment to moment, going on for untold

eons;

These atoms contain lands unspeakably many, and the atoms in these lands are even harder to tell of.[7]

Book 30 of the Buddhāvataṃsaka is named "The Incalculable" because it focuses on the idea of the infinitude of the universe and as Thomas Cleary notes, concludes that "the cosmos is unutterably infinite, and hence so is the total scope and detail of knowledge and activity of enlightenment." [8]

In another part of the Buddhāvataṃsaka sūtra, the actual metaphor of "Indra's Net" is used to refer to the all phenomena in the dharmadhātu ("dharma realm", ultimate reality, the ultimate principle, Chinese: 法界中):

They [Buddhas] know all phenomena come from interdependent origination.

They know all world systems exhaustively. They know all the different phenomena in all worlds, interrelated in Indra's net.[9]

In Huayan texts

Part of a series on

Chinese Buddhism

Liao dynasty statue of the Eleven Headed Guanyin in Dule Temple in Tianjin, China.

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Main article: Huayan

The metaphor of Indra's net of jewels plays an essential role in the metaphysics of the Chinese Buddhist Huayan school,[10] where it is used to describe the interpenetration or "perfect interfusion" (Chinese: yuánróng, 圓融) of microcosmos and macrocosmos, as well as the interfusion of all dharmas (phenomena) in the entire universe.[5] According to Bryan Van Norden, in the Huayan tradition, Indra's net is "adopted as a metaphor for the manner in which each thing that exists is dependent for both its existence and its identity upon every other thing that exists." [11]

The Huayan text entitled "Calming and Contemplation in the Five Teachings of Huayan" (Huayan wujiao zhiguan 華嚴五教止觀, T1867) attributed to the first Huayan patriarch Dushun (557–640) gives an extended overview of this concept:

The manner in which all dharmas interpenetrate is like an imperial net of celestial jewels extending in all directions infinitely, without limit. ... As for the imperial net of heavenly jewels, it is known as Indra's Net, a net which is made entirely of jewels. Because of the clarity of the jewels, they are all reflected in and enter into each other, ad infinitum. Within each jewel, simultaneously, is reflected the whole net. Ultimately, nothing comes or goes. If we now turn to the southwest, we can pick one particular jewel and examine it closely. This individual jewel can immediately reflect the image of every other jewel.

As is the case with this jewel, this is furthermore the case with all the rest of the jewels—each and every jewel simultaneously and immediately reflects each and every other jewel, ad infinitum. The image of each of these limitless jewels is within one jewel, appearing brilliantly. None of the other jewels interfere with this. When one sits within one jewel, one is simultaneously sitting in all the infinite jewels in all ten directions. How is this so? Because within each jewel are present all jewels. If all jewels are present within each jewel, it is also the case that if you sit in one jewel you sit in all jewels at the same time. The inverse is also understood in the same way. Just as one goes into one jewel and thus enters every other jewel while never leaving this one jewel, so too one enters any jewel while never leaving this particular jewel.[12]

The Huayan Patriarch Fazang (643–712) used the golden statue of a lion to demonstrate the Huayan vision of interpenetration to empress Wu:[13]

In each of the lion's eyes, in its ears, limbs, and so forth, down to each and every single hair, there is a golden lion. All the lions embraced by each and every hair simultaneously and instantaneously enter into one single hair. Thus, in each and every hair there are an infinite number of lions... The progression is infinite, like the jewels of Celestial Lord Indra's Net: a realm-embracing-realm ad infinitum is thus established, and is called the realm of Indra's Net.[13]

Indra and Atharva Veda

Main articles: Indra and Atharva Veda

According to Rajiv Malhotra, the earliest reference to a net belonging to Indra is in the Atharva Veda (c. 1000 BCE).[14] Verse 8.8.6. says:

Vast indeed is the tactical net of great Indra, mighty of action and tempestuous of great speed. By that net, O Indra, pounce upon all the enemies so that none of the enemies may escape the arrest and punishment.[15]

And verse 8.8.8. says:

This great world is the power net of mighty Indra, greater than the great. By that Indra-net of boundless reach, I hold all those enemies with the dark cover of vision, mind and senses.[16]

The net was one of the weapons of the sky-god Indra, used to snare and entangle



enemies.[17] The net also signifies magic or illusion.[18] According to Teun Goudriaan, Indra is conceived in the Rig Veda as a great magician, tricking his enemies with their own weapons, thereby continuing human life and prosperity on earth.[19] Indra became associated with earthly magic, as reflected in the term *indrajal*, "Indra's Net", the name given to the occult practices magicians.[19] According to Goudriaan, the term *indrajalam* seems to originate in verse 8.8.8 from the Atharva Veda, of which Goudriaan gives a different translation:[20]

This world was the net of the great Sakra (Indra), of mighty size; by means of this net of Indra I envelop all those people with darkness.[20]

According to Goudriaan, the speaker pretends to use a weapon of cosmical size.[20] The net being referred to here

...was characterized there as the *antariksa*-, the intermediate space between heaven and earth, while the directions of the sky were the net's sticks (*dandah*) by means of which it was fastened to the earth. With this net Indra conquered all his enemies.[20]

#### Modern and Western references

"Imagine a multidimensional spider's web in the early morning covered with dew drops. And every dew drop contains the reflection of all the other dew drops. And, in each reflected dew drop, the reflections of all the other dew drops in that reflection. And so ad infinitum. That is the Buddhist conception of the universe in an image." –Alan Watts[21]  
Gödel, Escher, Bach

In Gödel, Escher, Bach (1979), Douglas Hofstadter uses Indra's net as a metaphor for the complex interconnected networks formed by relationships between objects in a system—including social networks, the interactions of particles, and the "symbols" that stand for ideas in a brain or intelligent computer.[22]

#### Vermeer's Hat

Timothy Brook uses the metaphor:

Buddhism uses a similar image to describe the interconnectedness of all phenomena. It is called Indra's Net. When Indra fashioned the world, he made it as a web, and at every knot in the web is tied a pearl. Everything that exists, or has ever existed, every idea that can be thought about, every datum that is true—every dharma, in the language of Indian philosophy—is a pearl in Indra's net. Not only is every pearl tied to every other pearl by virtue of the web on which they hang, but on the surface of every pearl is reflected every other jewel on the net. Everything that exists in Indra's web implies all else that exists.  
[23]

Sarah Burton explains that Brook uses the metaphor, and its interconnectedness:

to help understand the multiplicity of causes and effects producing the way we are and

the way we were [...] In the same way, the journeys through Brook's picture-portals intersect with each other, at the same time shedding light on each other.[24]

### Brave New World

In the 2020 TV series Brave New World inspired by the homonymous book by Aldous Huxley, a new element is introduced in the original story: everyone in New London is always connected to an artificial intelligence called Indra, that observes, monitors and analyzes all citizens 24/7. Writer Grant Morrison named this network after the Vedic deity, since Huxley was famously fascinated by Indian mysticism and named another element of the story, Soma, after a Hindu ritual drink which shares its name with another Vedic deity.[25]

### Indra's Net: Defending Hinduism's Philosophical Unity

In Indra's Net (2014), Rajiv Malhotra uses the image of Indra's net as a metaphor for:

the profound cosmology and outlook that permeates Hinduism. Indra's Net symbolizes the universe as a web of connections and interdependences [...] I seek to revive it as the foundation for Vedic cosmology and show how it went on to become the central principle of Buddhism, and from there spread into mainstream Western discourse across several disciplines.[26]

### Midnight Gospel

In the 2020 TV series Midnight Gospel, Indra's Net is discussed in the episode "Annihilation of Joy" where prisoners die over and over.

See also

Brahmajala Sutra

Coincidentia oppositorum

Fazang

Hosshin Kingdom

Implicate and explicate order

Indra's thunderbolt

Macrocosm and microcosm

Metamodernism

Rhizome (philosophy)

Śakra (Buddhism)

The Net (substance)

Three Spheres II

Yaoyorozu no Kami

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vte

Topics in Buddhism

Categories: Buddhist symbolsMetaphorsNondualityPhilosophical analogiesWeapons of Indra

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"Phantom limb syndrome" redirects here; not to be confused with Alien limb syndrome.

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## Phantom limb

A cat attempting to use its left foreleg to scoop litter several months after it has been amputated

Specialty      Neurology

A phantom limb is the sensation that an amputated or missing limb is still attached. It is a chronic condition that is often resistant to treatment.[1] Approximately 80–100% of individuals with an amputation experience sensations in their amputated limb. However, only a small percentage will experience painful phantom limb sensations (phantom pain). These sensations are relatively common in amputees and usually resolve within two to three years without treatment. Research continues to explore the underlying mechanisms of phantom limb pain (PLP) and effective treatment options.[2]

## Signs and symptoms

Most (80–100%) amputees experience a phantom limb, with some of them having non-painful sensations.[3] The amputee may feel very strongly that the phantom limb is still part of the body.[4]

People will sometimes feel as if they are gesturing, feel itches, twitch, or even try to pick things up.[5] The missing limb often feels shorter and may feel as if it is in a distorted and painful position. Occasionally, the pain can be made worse by stress, anxiety and weather changes.[6] Exposure to extreme weather conditions, especially below freezing temperatures, can cause increased sensitivity to the sensation. Phantom limb pain is usually intermittent, but can be continuous in some cases. The frequency and intensity of attacks usually declines with time.[6]

Repressed memories in phantom limbs could potentially explain the reason for existing sensations after amputation. Specifically, there have been several reports from patients of painful clenching spasms in the phantom hand with the feeling of their nails digging into their palms. The motor output is amplified due to the missing limb; therefore, the patient may experience the overflow of information as pain. The patient contains repressed memories from previous motor commands of clenching the hand and sensory information from digging their nails into their palm. These memories remain due to previous neural connections in the brain.[7]

## Phantom limb syndrome

The term "phantom limb" was coined in 1872 by a physician named Silas Weir Mitchell, who, almost poetically, reported that '...nearly every man who loses limb carries about with him constant or inconstant phantom of the missing member, sensory ghost of that much of himself, and sometimes most inconvenient presence, faintly felt at times, but ready to be called up to his perception by blow, touch, or change of wind'.[8]

Nevertheless, there have been earlier reports of the phenomenon.[9] One of the first known medical descriptions of the phantom limb phenomenon was written by a French military surgeon, Ambroise Pare, in the sixteenth century. Pare noticed that some of his patients continued reporting pain in the removed limb after he performed the amputation.[10] For many years, the dominant hypothesis for the cause of phantom limbs was irritation in the peripheral nervous system at the amputation site (neuroma). By the late 1980s, Ronald Melzack had recognized that the peripheral neuroma account could not be correct, because many people born without limbs also experienced phantom limbs.[11] According to Melzack the experience of the body is created by a wide network of interconnecting neural structures, which he called the "neuromatrix".[11]

Pons and colleagues (1991) at the National Institutes of Health (NIH) showed that the primary somatosensory cortex in macaque monkeys undergoes substantial reorganization after the loss of sensory input.[12]

Hearing about these results, V. S. Ramachandran hypothesized that phantom limb sensations in humans could be due to reorganization in the human brain's somatosensory cortex. Ramachandran and colleagues illustrated this hypothesis by showing that stroking different parts of the face led to perceptions of being touched on different parts of the missing limb. Later brain scans of amputees showed the same kind of cortical reorganization that Pons had observed in monkeys.[13] Ramachandran have also performed the world's first phantom limb amputation surgeries by asking patients to visualize the missing limb, which relieved pain, and in the long term completely removed the sensation of a phantom limb – the method is now known as the mirror therapy.[14]

Maladaptive changes in the cortex may account for some but not all phantom limb pain. Pain researchers such as Tamar Makin (Oxford) and Marshall Devor (Hebrew University, Jerusalem) argue that phantom limb pain is primarily the result of "junk" inputs from the peripheral nervous system.[15] Despite a great deal of research on the underlying neural mechanisms of phantom limb pain there is still no clear consensus as to its cause. Both the brain and the peripheral nervous system may be involved.[16]

Research continues into more precise mechanisms and explanations.[17]

#### Differentiation of limb sensations

Phantom limb syndrome (PLS) is a sensation that the amputated or missing limb is still attached to the body. This is different from residual limb pain (RLP) that is often experienced by people with amputations. While RLP occurs in the remaining or residual body part, the pain or sensation associated with PLS can be experienced in the entire limb or just one portion of the missing limb. Phantom limb can also present itself in two ways: phantom limb pain or phantom limb sensations. Phantom limb pain is a painful or unpleasant sensation experienced where the amputated limb was. Phantom sensations are any other, nonpainful sensations perceived in the amputated or missing limb area. [18]

### Types of phantom sensations

There are 3 differentiated types of phantom sensations: kinetic, kinesthetic, and exteroceptive. Kinetic phantom sensations are perceived movements of the amputated body part (i.e., feeling your toes flex). Kinesthetic phantom sensations are related to the size, shape, or position of the amputated body part (i.e., feeling as if your hand is in a twisted position). Exteroceptive phantom sensations are related to sensations perceived to be felt by the amputated body part (i.e., feelings of touch, pressure, tingling, temperature, itch, and vibrations).

An additional sensation that some people with amputations experience is known as telescoping. Telescoping is when you feel as if your amputated limb is becoming more proximal to your body through progressive shortening.[18]

### Neural mechanisms

Pain, temperature, touch, and pressure information are carried to the central nervous system via the anterolateral system (spinothalamic tracts, spinoreticular tract, spinomesencephalic tract), with pain and temperature information transferred via lateral spinothalamic tracts to the primary sensory cortex, located in the postcentral gyrus in the parietal lobe, where sensory information is represented somatotopically, forming the sensory homunculus.[19] Somatotopic representation seems to be a factor in the experience of phantom limb, with larger regions in the sensory homunculus typically experiencing more phantom sensations or pain. These areas include the hands, feet, fingers and toes.

In phantom limb syndrome, there is sensory input indicating pain from a part of the body that is no longer existent. This phenomenon is still not fully understood, but it is hypothesized that it is caused by activation of the somatosensory cortex.[10] One theory is it may be related to central sensitization, which is a common experience among amputees. Central sensitization is when there are changes in the responsiveness of the neurons in the dorsal horn of the spinal cord, which deals with processing somatosensory information, due to increased activity from the peripheral nociceptors. Peripheral nociceptors are sensory neurons that alert us to potentially damaging stimuli. [10]

There are theories that the phantom limb phenomenon may relate to reorganization of the somatosensory cortex after the limb is removed. When the body receives tactile input near the residual limb, the brain is convinced that the sensory input was received from the amputated limb because another brain region took over. Reorganization has been thought to be related to sensory-discriminative parts of pain as well as the affective-emotional parts of it (i.e., insula, the anterior cingulate cortex, and the frontal cortices).[20]

Phantom sensations can also occur when there has been a peripheral nerve injury resulting in deafferentation. This causes changes in the dorsal horn of the spinal cord, which normally has an inhibitory effect on sensory transmission.[18]

## Treatment

Most approaches to treatment over the past two decades have not shown consistent symptom improvement. Treatment approaches have included medication such as antidepressants, spinal cord stimulation, vibration therapy, acupuncture, hypnosis, and biofeedback.[21] Reliable evidence is lacking on whether any treatment is more effective than the others.[22]

A mirror box used for treating phantom limbs, developed by V.S. Ramachandran. Most treatments are not very effective.[23] Ketamine or morphine may be useful around the time of surgery.[24] Morphine may be helpful for longer periods of time.[24] Evidence for gabapentin is mixed.[24] Perineural catheters that provide local anesthetic agents have poor evidence of success when placed after surgery in an effort to prevent phantom limb pain.[25]

One approach that has received public interest is the use of a mirror box. The mirror box provides a reflection of the intact hand or limb that allows the patient to "move" the phantom limb, and to unclench it from potentially painful positions.[26][27]

Although mirror therapy was introduced by VS Ramachandran in the early 1990s, little research was done on it before 2009, and much of the subsequent research has been of poor quality, according to a 2016 review.[28] A 2018 review, which also criticized the scientific quality of many reports on mirror therapy (MT), found 15 good-quality studies conducted between 2012 and 2017 (out of a pool of 115 publications), and concluded that "MT seems to be effective in relieving PLP, reducing the intensity and duration of daily pain episodes. It is a valid, simple, and inexpensive treatment for PLP." [29] Nevertheless, the debate in the field remains open. A 2025 scoping review reported 'significant heterogeneity of practice' and 'a lack of consensus on treatment frameworks' in the literature, indicating that the effectiveness of the treatment remains hard to assess.[30] New approaches, such as the use of virtual reality to simulate the missing limb, are supported by similarly weak evidence.[31]

## Other phantom sensations

Phantom sensations may also occur after the removal of body parts other than the limbs, e.g. after amputation of the breast,[32] extraction of a tooth (phantom tooth pain) [33] or removal of an eye (phantom eye syndrome).[34][35]

Phantom sensations have been noted in the transgender population. Some people who have undergone sex reassignment surgery (SRS) have reported the sensation of phantom genitals. The reports were less common among post-operative transgender women, but did occur in transgender men. Phantom penises in pre-SRS transgender men have been documented to be similar to the rate of phantom sensations in cis men post-penectomy.[36] Similarly, subjects who had undergone mastectomy reported experiencing phantom breasts; these reports were substantially less common among



post-operative transgender men.[37]

See also

Neuropathic pain

Supernumerary phantom limb, where sensations are felt in a limb that never existed

Synesthesia

Visual release hallucinations

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For the band, see Orgone (band).

Orgone "energy accumulator"

Orgone energy accumulator with the door closed.

(with the door closed)

Orgone energy accumulator with the door open.

(with the door open)

Alternating layers of organic and non-organic materials inside the walls supposedly increase the orgone concentration inside the enclosure relative to the surrounding environment.

Part of a series on

Alternative medicine

General information

Fringe medicine and science

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Orgone (/ˈɔːrgoʊn/ OR-gohn)[1] is a pseudoscientific[2] concept variously described as an esoteric energy or hypothetical universal life force. Originally proposed in the 1930s by Wilhelm Reich,[3][4][5] and developed by Reich's student Charles Kelley after Reich's death in 1957, orgone was conceived as the anti-entropic principle of the universe, a creative substratum in all of nature comparable to Mesmer's animal magnetism (1779), to the Odic force (1845) of Carl Reichenbach and to Henri Bergson's *élan vital* (1907).[6] Orgone was seen as a massless, omnipresent substance, similar to luminiferous aether, but more closely associated with living energy than with inert matter. It could allegedly coalesce to create organization on all scales, from the smallest microscopic units—called "bions" in orgone theory—to macroscopic structures like organisms, clouds, or even galaxies.[7]

Reich argued that deficits or constrictions in bodily orgone were at the root of many diseases, most prominently cancer, much as deficits or constrictions in the libido could produce neuroses in Freudian theory. Reich founded the Orgone Institute ca. 1942[8] to pursue research into orgone energy after he immigrated to the US in 1939; he used it to publish literature and distribute material relating to the topic for over a decade. Reich designed special "orgone energy accumulators"—devices ostensibly collecting orgone energy from the environment—to enable the study of orgone energy and to be applied medically to improve general health and vitality.[3] Ultimately, the U.S. Food and Drug Administration (FDA) obtained a federal injunction barring the interstate distribution of orgone-related materials because Reich and his associates were making false and misleading claims. But an associate of Reich violated the injunction, and a judge later sentenced Reich to jail and ordered the banning and destruction of all orgone-related materials at the institute.[4]

Reich denied the assertion that orgone accumulators could improve sexual health by providing orgasmic potency.[9]

The National Center for Complementary and Integrative Health lists orgone as a type of "putative energy", writing that "putative energy fields (also called biofields) have defied measurement to date by reproducible methods. Therapies involving putative energy fields are based on the concept that human beings are infused with a subtle form of energy. This proposed vital energy or life force is known under different names in different cultures, such as qi ... prana, etheric energy, fohat, orgone, odic force, mana, and homeopathic resonance".[10]

After Reich's death, research into the concept of orgone passed to some of his students,

such as Kelley, and later to a new generation of researchers. An Institute for Orgonomic Science was founded in New York in 1982, dedicated to the continuation of Reich's work; it publishes a digital journal and collects corresponding works.[11] However, there was no empirical support for the concept of orgone in medicine or the physical sciences, [12] and research into the concept concluded with the end of the institute.

Nevertheless, Stefan Muschenich, a psychiatrist in Germany keen to discover an empirical basis for the orgone hypothesis, did publish some positive results in the 1980s and 90s.[13]

## History

The concept of orgone belongs to Reich's later work after he immigrated to the US. Reich's early work was based on the Freudian concept of the libido, though influenced by sociological understandings with which Freud disagreed but which were to some degree followed by other prominent theorists such as Herbert Marcuse and Carl Jung. While Freud had focused on a solipsistic conception of mind in which unconscious and inherently selfish primal drives (primarily the sexual drive, or libido) were suppressed or sublimated by internal representations (cathexes) of parental figures (the superego), for Reich libido was a life-affirming force repressed by society directly. For example, in one of his better-known analyses, Reich observes a workers' political rally, noting that participants were careful not to violate signs that prohibited walking on the grass; Reich saw this as the state co-opting unconscious responses to parental authority as a means of controlling behavior.[14] He was expelled from the Institute of Psycho-analysis because of these disagreements over the nature of the libido and his increasingly political stance. He was forced to leave Germany soon after Hitler came to power.[15]

Reich with one of his cloudbusters, a device which supposedly could influence weather by altering levels of atmospheric orgone.

Reich took an increasingly bioenergetic view of libido, perhaps influenced by his tutor Paul Kammerer and another biologist, Otto Heinrich Warburg.[16] In the early 20th century, when molecular biology was in its infancy, developmental biology in particular still presented mysteries that made the idea of a specific life energy respectable, as was articulated by theorists such as Hans Driesch. As a psycho-analyst, Reich aligned such theories with the Freudian libido, while as a materialist, he believed such a life force must be susceptible to physical experiments.

Reich wrote in his best-known book, *The Function of the Orgasm*: "Between 1919 and 1921, I became familiar with Driesch's 'Philosophie des Organischen' and his 'Ordnungslehre'... Driesch's contention seemed incontestable to me. He argued that, in the sphere of the life function, the whole could be developed from a part, whereas a machine could not be made from a screw... However, I couldn't quite accept the transcendentalism of the life principle. Seventeen years later I was able to resolve the contradiction on the basis of a formula pertaining to the function of energy. Driesch's theory was always present in my mind when I thought about vitalism. The vague feeling

I had about the irrational nature of his assumption turned out to be justified in the end. He landed among the spiritualists."[17]

The concept of orgone resulted from this work in the psycho-physiology of libido. After Reich migrated to the US, he began to speculate about biological development and evolution and then branched into much broader speculations about the nature of the universe.[6] This led him to the conception of "bions," self-luminescent sub-cellular vesicles that he believed were observable in decaying materials and presumably present universally. Initially, he thought of bions as electrodynamic or radioactive entities, as had the Russian biologist Alexander Gurwitsch, but later concluded that he had discovered an entirely unknown but measurable force, which he then named "orgone": a neologism probably formed from the Greek root org- "impulse, excitement" (as in org-asm), plus the Greek neutral suffix -one (as in ozone).[18][6]

For Reich, neurosis became a physical manifestation he called "body armor"—deeply seated tensions and inhibitions in the physical body that were not separated from any mental effects that might be observed.[19] He developed a therapeutic approach he called vegetotherapy that was aimed at opening and releasing this body armor so that free instinctive reflexes—which he considered a token of psychic well-being—could take over.

#### Evaluation

Orgone was closely associated with sexuality: Reich, following Freud, saw nascent sexuality as the primary energetic force of life. The term itself was chosen to share a root with the word orgasm, which both Reich and Freud took as a fundamental expression of psychological health. This focus on sexuality, while acceptable in the clinical perspective of Viennese psychoanalytic circles, scandalized the conservative American public even as it appealed to countercultural figures like William S. Burroughs and Jack Kerouac.

In some cases, Reich's experimental techniques do not appear to have been very careful or include precautions to remove experimental bias.[20] Reich was concerned with experimental verification from other scientists. Albert Einstein agreed to participate, but thought Reich's research lacked scientific detachment and experimental rigor, and concluded that the effect was simply due to the temperature gradient inside the room. "Through these experiments I regard the matter as completely solved," he wrote to Reich on 7 February 1941. Upon further correspondence from Reich, Einstein replied that he could not devote any additional time to the matter and asked that his name not be misused for advertising purposes.

Orgone and its related concepts were quickly denounced in the post-World War II American press.[21] Reich and his students were seen as a "cult of sex and anarchy", at least in part because orgone was linked with the title of his book *The Function of the Orgasm*, and this led to numerous investigations as a communist and denunciation under a wide variety of other pretexts.[22] The psychoanalytical community of the time



saw his approach to healing diseases as quackery of the worst sort.[23] In 1954, the US Food and Drug Administration obtained an injunction to prevent Reich from making medical claims relating to orgone, which prevented him from shipping "orgone devices" across state lines, among other stipulations.[24] Reich resisted the order to cease interstate distribution of orgone and was jailed, and the FDA destroyed Reich's books, research materials, and devices at his institute relating to orgone.[5][24][25][26]

Some psychotherapists and psychologists practicing various kinds of body psychotherapy and somatic psychology have continued to use Reich's proposed emotional-release methods and character-analysis ideas.[27][28][29]

In popular culture

Dušan Makavejev opened his 1971 satirical film *W.R.: Mysteries of the Organism* with documentary coverage of Reich and his development of orgone accumulators, combining this with other imagery and a fictional sub-plot in a collage mocking sexual and political authorities.[30] Scenes include one of only "ten or fifteen orgone boxes left in the country" at that time.[31]

The 2025 first-person shooter video game *Psycho Patrol R* references Reich's ideas. In the game's setting, orgone has been scientifically verified and is used as a power source for advanced technologies.[32]

See also

Alexander Gurwitsch

Animal magnetism of Franz Anton Mesmer

Energy (spiritual)

Energy medicine

Fringe science

Integratron

List of ineffective cancer treatments

Odic force of Carl Reichenbach

Rupert Sheldrake

Scientific skepticism

Thetan

Vitalism

Vril

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Bauer 2000, p. 159. Henry H. Bauer, 2000: "Reich's personal charisma seems to have misled some number of people into taking his 'science' seriously. His outward behavior

was not inconsistent with that of a mainstream scientific investigator. In the light of everyday common sense rather than of deep technical knowledge, his ideas could seem highly defensible. For those who lack familiarity with the real science of matters Reich dealt with, why would orgone be less believable than black holes, a bounded yet infinite universe, or "dark matter" ...?"

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This article is about the philosophical concept originating with René Descartes. For other uses, see [Demon \(disambiguation\)](#) and [Evil genius \(disambiguation\)](#).

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The evil demon, also known as [Deus deceptor](#),<sup>[1]</sup> [malicious demon](#),<sup>[2]</sup> and [evil genius](#),<sup>[1][3]</sup> is an epistemological concept that features prominently in Cartesian philosophy.<sup>[1]</sup> In the first of his 1641 *Meditations on First Philosophy*, Descartes imagines that a malevolent God<sup>[1]</sup> or an evil demon, of "utmost power and cunning has employed all his energies in order to deceive me". This malevolent God or evil demon is imagined to present a complete illusion of an external world, so that Descartes can say, "I shall think that the sky, the air, the earth, colours, shapes, sounds and all external things are merely the delusions of dreams which he has devised to ensnare my judgement. I shall consider myself as not having hands or eyes, or flesh, or blood or senses, but as falsely believing that I have all these things."

Some Cartesian scholars opine that the malevolent God or evil demon is also omnipotent, and thus capable of altering mathematics and the fundamentals of logic, though omnipotence of the malevolent God or evil demon would be contrary to Descartes' hypothesis, as he rebuked accusations of the evil demon having omnipotence.<sup>[4][5]</sup> It is one of several methods of systematic doubt that Descartes employs in the *Meditations*.<sup>[4]</sup>

In context  
icon

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Prior to the Meditations proper, Descartes gives a synopsis of each Meditation and says of Meditation One that "reasons are provided which give us possible grounds for doubt about all things, especially material things" and that whilst the usefulness of such extensive doubt may not be immediately apparent, "its greatest benefit lies in

freeing us from all our preconceived opinions, and  
providing the easiest route by which the mind may be led away from the senses.  
The eventual result of this doubt is to

make it impossible for us to have any further doubts about what we subsequently discover to be true."

Descartes offers some standard reasons for doubting the reliability of the senses culminating in the dream argument and then extends this with the deceiving God argument. Descartes refers to "the long-standing opinion that there is an omnipotent God who made me the kind of creature that I am" and suggests that this God may have "brought it about that there is no earth, no sky, no extended thing, no shape, no size, no place, while at the same time ensuring that all these things appear to me to exist just as they do now". Furthermore, this God may have "brought it about that I too go wrong every time I add two and three or count the sides of a square, or in some even simpler matter, if that is imaginable".

After the deceiving God argument Descartes concludes that he is "compelled to admit that there is not one of my former beliefs about which a doubt may not properly be raised".[citation needed]

It is only after arriving at this conclusion that Descartes introduces the evil demon.

Although Descartes has provided arguments for doubting all his former beliefs he notes that "my habitual opinions keep coming back". It is to deal with this problem that Descartes decides he must do more than just acknowledge that the beliefs are open to doubt and must deceive himself, "by pretending for a time that these former opinions are utterly false and imaginary" and that he shall do this "until the weight of preconceived opinion is counter-balanced and the distorting influence of habit no longer prevents my judgement from perceiving things correctly".

It is to achieve this state of denial that Descartes says he will suppose that "some malicious demon of the utmost power and cunning has employed all his energies in order to deceive me".

The evil demon is also mentioned at the beginning of Meditation Two. Descartes says that if there is "a deceiver of supreme power and cunning who is deliberately and constantly deceiving me" then he himself must undoubtedly exist for the deceiver can "never bring it about that I am nothing so long as I think that I am something". A little later he says, "But what shall I now say that I am, when I am supposing that there is some supremely powerful and, if it is permissible to say so, malicious deceiver, who is deliberately trying to trick me in every way he can?"

#### The deceiving god

Some writers, e.g. Bernard Williams[6] and Alan Musgrave,[7] make no distinction between the deceiving God and evil demon arguments and regard anything said about the deceiving God as being equivalent to saying something about the evil demon.

Other writers acknowledge that Descartes makes mention of both but then claim they are 'epistemologically equivalent'. Anthony Kenny:35 says, "the two hypotheses do not differ in any respect of epistemological importance... The content of the two hypotheses is the same..."[8] Lex Newman says, "Descartes' official position is that the Evil Genius Doubt is merely one among multiple hypotheses that can motivate the more general hyperbolic doubt... Even so, I regularly speak in terms of the evil genius... as a kind of mnemonic for the more general doubt about our cognitive nature." [9]

If they are epistemologically equivalent, then the question arises as to why Descartes temporarily shifted from the deceiving God to the evil demon. It is tempting to think it is because there is a relevant theological difference. In Meditation Three, Descartes is going to establish not only that there is a God but that God is not a deceiver. When Descartes first introduces the evil demon he says, "I will suppose therefore that not God, who is supremely good and the source of truth, but rather some malicious demon, had employed his whole energies in deceiving me." Kenny says, "The hypothesis of the evil genius is substituted for that of the deceitful God simply because it is less offensive and less patently incoherent." [8]:35 However, at least in Meditation One, Descartes doesn't have a problem in postulating a deceiving God and he rejects the objection that such deception is inconsistent with God's supreme goodness. He says, "if it were inconsistent with his goodness to have created me such that I am deceived all the time, it would seem equally foreign to his goodness to allow me to be deceived even occasionally; yet this last assertion cannot be made." This is consistent with what he writes in the Principles where he says, "we have been told that God who created us can do all that he desires, and we do not yet know whether he may not have willed to create us in such a way that we shall always be deceived even in the things that we think ourselves to know best."

Other writers insist that it is important to maintain the distinction between the deceiving God and the evil demon. Gouhier (quoted by Kenny) argues that the deceiving God is an intellectual scruple that will disappear when metaphysics demonstrates its falsity whilst the evil demon is a methodological procedure designed to make a certain

experiment and it ceases with that experiment. He says, "Neither the purpose nor the content of the two hypotheses allow us to regard the one as a variant of the other." [8]:35

Vendler argues that literary form of the Meditations is heavily influenced by St. Ignatius of Loyola's Spiritual Exercises to which Descartes will have been exposed during his training at the Jesuit college of La Fleche. As such, "The demon in the First Meditation is not evoked to serve as an epistemological menace, but as a psychological device: following Loyola's advice *age contra!* (go against!), it provides a counterweight to our inordinate inclination to trust the senses." [10]:196 He adds, "the 'demon-argument' is not an argument at all. Descartes does not need another argument at this stage: the dream argument has already shown the unreliability of the senses and the deceiver-God argument the uncertainty of mathematics. For one thing, the demon does not even touch mathematics or geometry. Why should he? He is evoked by Descartes to cure his inordinate attachment to the senses; he does not complain (and would not) of a similar attachment to mathematics or geometry." [10]:204 Hatfield takes a similar line saying, "Descartes adopts a common practice from the spiritual exercises upon which his metaphysical meditations are modelled, devising a program for training the will to keep the old beliefs at bay" [11]:87 adding, "It seems likely that he chose to call his hypothetical deceiver a 'malicious demon' in order to avoid having the meditator concentrate extensively on the thought that God could be a deceiver, a proposition he considered false and one he intended to refute later." [11]:88

## Omnipotence

Further information: Theodicy and Dystheism

Among the accusations of blasphemy made against Descartes by Protestants was that he was positing an omnipotent malevolent God. Voetius accused Descartes of blasphemy in 1643. Jacques Triglandius and Jacobus Revius, theologians at Leiden University, made similar accusations in 1647, accusing Descartes of "hold[ing] God to be a deceiver", a position that they stated to be "contrary to the glory of God". Descartes was threatened with having his views condemned by a synod, but this was prevented by the intercession of the Prince of Orange (at the request of the French Ambassador Servien). [5]

The accusations referenced a passage in the First Meditation where Descartes stated that he supposed not an optimal God but rather an evil demon "*summe potens & callidus*" (translated as "most highly powerful and cunning"). The accusers identified Descartes' concept of a *deus deceptor* with his concept of an evil demon, stating that only an omnipotent God is "*summe potens*" and that describing the evil demon as such thus demonstrated the identity. Descartes' response to the accusations was that in that passage he had been expressly distinguishing between "the supremely good God, the source of truth, on the one hand, and the malicious demon on the other". He did not directly rebut the charge of implying that the evil demon was omnipotent, but asserted that simply describing something with "some attribute that in reality belongs only to God" does not mean that that something is being held to actually be a supreme God. [5]



According to Janowski, "The alleged distinction between the respective powers of God and the evil genius that escaped the attention of the two theologians also escaped the attention of a host of distinguished Cartesian scholars (Alquié, Beck, Brehier, Chevalier, Frankfurt, Gilson, Kenny, Laporte, Kemp-Smith, Wilson), who, only seldom interested in interpreting Descartes' philosophy through the prism of doctrinal orthodoxy, also insist on the omnipotence of the evil genius." [5]:65 He further claims that the reason for this is that there is progression through the First Meditation, leading to the introduction of the concept of the evil genius "which crowns the process begun at the outset of the Meditations." [5]:65

However, it is not quite so straightforward. For example, Wilson notes that "Gouhier has shown, the hypothesis of the malign spirit takes over from that of the Deceiving God from the end of the First Meditation to the beginning of the Third—where the latter figure is resubstituted without comment or explanation. As Gouhier has also noted, the summary of 'doubts' in the concluding passage ... does not include mention of mathematical propositions—which are not again brought into discussion until the Third Meditation." [12]:32 She adds in the accompanying footnote that, even if one has to concede that the text doesn't reveal any sharp distinction between the power hypothetically ascribed to the 'malignant spirit' and that genuinely attributable to God, "Gouhier's observation is essentially accurate, and useful in understanding the rhetoric and organization of the first three Meditations. It may also have some deeper significance, because of the association ... of the possibility of deception in mathematics with the doctrine of the creation of the eternal truths." [12]:226

Similarly, Kenny who does say that the evil genius is substituted for that of the deceitful God "simply because it is less offensive and less patently incoherent", for "The content of the two hypotheses is the same, namely that an omnipotent deceiver is trying to deceive", [8]:35 goes on to note that, "If the two hypotheses differ at all, it is the first that is more skeptical than the second. God ... may have made him go wrong in mathematics ... the evil genius merely reinforces the doubt that the external world may be a dream." [8]:36 When Kenny says that the evil genius is simply a substitute for the deceitful God, he is not trying to establish that, therefore, the evil genius was omnipotent, instead he is challenging the view that the evil genius somehow progressed on from God and is rejecting the view that "the evil genius is to serve a more radically skeptical purpose than the hypothesis of the deceitful God." [8]:35

According to Janowski, the fact that the demon is not said to challenge mathematics, implies either that the evil demon is not omnipotent or that Descartes retracted Universal Doubt. Janowski notes that in the Principles of Philosophy (I, 15) Descartes states that Universal Doubt applies even to "the demonstration of mathematics", and so concludes that either Descartes' Meditation is flawed, lacking a reason for doubting mathematics, or that the charges of blasphemy were well placed, and Descartes was supposing an omnipotent evil demon. [5]:67

However, this is only a problem if one assumes that Descartes was withdrawing the

notion of a deceitful God and replacing it with the evil demon. More recent commentators take the argument to have reached its conclusion with the deceitful God. When Descartes says, "I will suppose therefore that not God, who is supremely good and the source of truth, but rather some malicious demon..."[2]:15 he is not rejecting the notion of a deceitful God on the grounds that God is not a deceiver for this is something he is not entitled to rely on, because, as he says at the beginning of Meditation three, he doesn't "yet even know for sure whether there is a God at all". Instead, he is introducing an aid to the meditator who finds that, despite the arguments presented, "habitual opinions keep coming back". Kenny says, "The purpose of taking seriously the hypothesis of the evil genius is to counterbalance natural credulity and keep in mind the doubts raised by the supposition of the deceitful God."[8]:35 When the role of the demon is understood this way the issue of the demon's omnipotence becomes unimportant.

### The brain in a vat

Main article: Brain in a vat

In 1968, James Cornman and Keith Lehrer suggested something they called the braino machine that "operates by influencing the brain of a subject who wears a special cap, called a "braino cap." When the braino cap is placed on a subject's head, the operator of the braino can affect his brain so as to produce any hallucination in the subject that the operator wishes. The braino is a hallucination-producing machine. The hallucinations produced by it may be as complete, systematic, and coherent as the operator of the braino desires to make them."[13]:54 The braino argument was intended to show that, even if it is sometimes possible for a person to tell if they are hallucinating, it is not possible for them to know that they are not hallucinating. If the braino is operated by an evil being, whom Cornman and Lehrer call Dr. O, then it would be possible for Dr. O to create in a person experiences that are identical to the ones of the supposed real world. If that were the case, then the experiences thus created would not constitute knowledge, for the source of those experiences would be the machine and not the world. However, since the fake and the real would be hypothetically indistinguishable, it follows that the current supposed experiences of the real world are also insufficient to generate knowledge. This proof by contradiction that the real world cannot generate knowledge, and thus that the fake imitation world cannot generate knowledge either, is one proposed way of disproving the Brain in a Vat argument.[citation needed]

In 1973, in the introduction to his book *Thought*, Gilbert Harman said, "it might be suggested that you have not the slightest reason to believe that you are in the surroundings you suppose you are in ... various hypotheses could explain how things look and feel. You might be sound asleep and dreaming or a playful brain surgeon might be giving you these experiences by stimulating your cortex in a special way. You might really be stretched out on a table in his laboratory with wires running into your head from a large computer. Perhaps you have always been on that table. Perhaps you are quite a different person from what you seem..."[14]:5

Such scenarios had been used many times in science fiction but in philosophy it is now

routine to refer to being like a 'brain in a vat' after Hilary Putnam produced an argument which, ironically, purported to show that "the supposition that we are actually brains in a vat, although it violates no physical law, and is perfectly consistent with everything we have experienced, cannot possibly be true. It cannot possibly be true, because it is, in a certain way, self-refuting." [15]:7

Putnam's argument notwithstanding, the brain in a vat scenario is usually presented as a sceptical argument and in many ways equivalent to Descartes' deceiving God and evil demon.

One crucial difference that prevents such scenarios being a direct substitute for the deceiving God and evil demon is that they generally presuppose that we have heads or bodies whereas it is important for Descartes to argue that he can doubt the existence of his body and that he can only be sure he is a 'thinking thing'. [7]:205 [11]:81 Harman's version of the story does, however, add the final thought that having a brain "might be just part of the myth you are being given". [14]:5

See also

Allegory of the cave

Boltzmann brain

Cogito ergo sum

Demiurge

Dream argument

Experience machine

Internalism and externalism

Simulated reality

Simulation hypothesis

Skeptical hypothesis

The Imaginary (Sartre)

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vte

Philosophical skepticism

vte

Catholic philosophy

Categories: Concepts in epistemologyConcepts in metaphysicsConcepts in the philosophy of mindDemonsInternalism and externalismRené DescartesMetaphors referring to monsters

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[An augmented reality mapping application](#)

Augmented reality (AR), also known as mixed reality (MR), is a form of 3D human–computer interaction that overlays real-time 3D-rendered computer graphics into the real world through a display, such as a handheld device or head-mounted display. This experience is seamlessly interwoven with the physical world such that it is perceived as an immersive aspect of the real environment.[1] In this way, augmented reality alters one's ongoing perception of a real-world environment, compared to virtual reality, which aims to completely replace the user's real-world environment with a simulated one.[2][3] Augmented reality is typically visual, but can span multiple sensory modalities, including auditory, haptic, and somatosensory.[4]

The earliest functional AR systems that provided immersive mixed reality experiences for users were invented in the early 1990s, starting with the Virtual Fixtures system developed at the U.S. Air Force's Armstrong Laboratory in 1992.[1][5][6] Commercial augmented reality experiences were first introduced in entertainment and gaming businesses.[7] Subsequently, augmented reality applications have spanned industries

such as education, communications, medicine, and entertainment.

Augmented reality frameworks include ARKit and ARCore. Commercial augmented reality headsets include the Magic Leap 1 and HoloLens. A number of companies have promoted the concept of smartglasses that have augmented reality capability.

Augmented reality refers to experiences that are artificial and that add to the already existing reality.[8][9][10] In AR, information about the environment and its objects can be overlaid on the real world. This information can be virtual or real, e.g. seeing other real sensed or measured information such as electromagnetic radio waves overlaid in exact alignment with where they actually are in space.[11][12][13] Augmented reality also has a lot of potential in the gathering and sharing of tacit knowledge.

Augmented reality can be defined as a system that incorporates three basic features: a combination of real and virtual worlds, real-time interaction, and accurate 3D registration of virtual and real objects.[14] The overlaid sensory information can be constructive (i.e. additive to the natural environment), or destructive (i.e. masking of the natural environment).[1]

Hardware and displays

Photograph of a man wearing an augmented reality headset

A man wearing an augmented reality headset

Magic Leap One AR headset

AR visuals appear on handheld devices (video passthrough) or head-mounted displays (optical see-through or video passthrough). Systems pair a display with sensors (e.g., cameras and IMUs) to register virtual content to the environment; research also explores near-eye optics, projection-based AR, and experimental concepts such as contact-lens or retinal-scanned displays.[15][16]

Head-mounted displays

Main article: Head-mounted display

AR HMDs place virtual imagery in the user's view using optical see-through or video passthrough and track head motion for stable registration.[17]

Handheld

Phone and tablet AR uses the rear camera (video passthrough) plus on-device SLAM/VIO for tracking.[18][19]

Projection mapping

Main article: Projection mapping

Projectors overlay graphics onto real objects/environments without head-worn displays (spatial AR).[20]

AR glasses

Glasses-style near-eye displays aim for lighter, hands-free AR; approaches vary in optics, tracking, and power.[17]

### 3D tracking

Further information: Simultaneous localization and mapping, Visual odometry, Fiducial marker, and Image registration

AR systems estimate device pose and scene geometry so virtual graphics stay aligned with the real world. Common approaches include visual–inertial odometry and SLAM for markerless tracking, and fiducial markers when known patterns are available; image registration and depth cues (e.g., occlusion, shadows) maintain realism.[16][21][22]

### Software and standards

Further information: ARKit, ARCore, and Augmented Reality Markup Language  
AR runtimes provide sensing, tracking, and rendering pipelines; mobile platforms expose SDKs with camera access and spatial tracking. Interchange/geospatial formats such as ARML standardize anchors and content.[23][24][18]

### Interaction and input

Further information: Human–computer interaction and Gesture recognition  
Input commonly combines head/gaze with touch, controllers, voice, or hand tracking; audio and haptics can reduce visual load. Human-factors studies report performance benefits but also workload and safety trade-offs depending on task and context.[25][22]

### Design considerations

Key usability factors include stable registration, legible contrast under varied lighting, and low motion-to-photon latency. Visual design often uses depth cues (occlusion, shadows) to support spatial judgment; safety-critical uses emphasize glanceable prompts and minimal interaction.[26][27][16]

### Comparison with mixed reality/virtual reality

Augmented reality (AR) is largely synonymous with mixed reality (MR). There is also overlap in terminology with extended reality and computer-mediated reality. However, In the 2020s, the differences between AR and MR began to be emphasized.[28][29]

### Types of extended reality

In augmented reality, users are not only able to view digital content within their real environment but can also interact with it as if it were a tangible part of the physical world.[30] This is made possible through devices such as Meta Quest 3S and Apple Vision Pro, which utilize multiple cameras and sensors to enable real-time interaction between virtual and physical elements.[31] Mixed reality that incorporates haptics has sometimes been referred to as visuo-haptic mixed reality.[32][33]

In virtual reality (VR), the users' perception is completely computer-generated, whereas with augmented reality (AR), it is partially generated and partially from the real world.[34]

[35] For example, in architecture, VR can be used to create a walk-through simulation of the inside of a new building; and AR can be used to show a building's structures and systems super-imposed on a real-life view. Another example is through the use of utility applications. Some AR applications, such as Augment, enable users to apply digital objects into real environments, allowing businesses to use augmented reality devices as a way to preview their products in the real world.[36] Similarly, it can also be used to demo what products may look like in an environment for customers, as demonstrated by companies such as Mountain Equipment Co-op or Lowe's who use augmented reality to allow customers to preview what their products might look like at home.[37]

Augmented reality (AR) differs from virtual reality (VR) in the sense that in AR, the surrounding environment is real and AR is just adding virtual objects to the real environment. On the other hand, in VR, the surrounding environment is completely virtual and computer generated. A demonstration of how AR layers objects onto the real world can be seen with augmented reality games. WallaMe is an augmented reality game application that allows users to hide messages in real environments, utilizing geolocation technology in order to enable users to hide messages wherever they may wish in the world.[38]

The use of the terms "mixed reality" and "interreality" is clearly defined in the context of physics and may be slightly different in other fields, however, it is generally seen as, "bridging the physical and virtual world".[39]

Recent improvements in AR and VR headsets have made the display quality, field of view, and motion tracking more accurate, which makes augmented experiences more immersive. Improvements in sensor calibration, lightweight optics, and wireless connectivity have also made it easier for users to move around and be comfortable.[40]

## History

Photograph of an early AR system

Virtual Fixtures – early AR system, U.S. Air Force, Wright-Patterson Air Force Base (1992)

Precursors to augmented reality

1901: Author L. Frank Baum, in his science-fiction novel *The Master Key*, first mentions the idea of an electronic display/spectacles that overlays data onto real life (in this case 'people'). It is named a 'character marker'.[41]

Heads-up displays (HUDs), a precursor technology to augmented reality, were first developed for pilots in the 1950s, projecting simple flight data into their line of sight, thereby enabling them to keep their "heads up" and not look down at the instruments. It is a transparent display.

Earliest developments

1968: Ivan Sutherland creates the first optical-see through head-mounted display that has graphics rendered by a computer.[42]

1975: Myron Krueger creates Videoplace to allow users to interact with virtual objects.

1980: The research by Gavan Lintern of the University of Illinois is the first published



work to show the value of a heads up display for teaching real-world flight skills.[43]

1980: Steve Mann creates the first wearable computer, a computer vision system with text and graphical overlays on a photographically mediated scene.[44]

1986: Within IBM, Ron Feigenblatt describes the most widely experienced form of AR today (viz. "magic window," e.g. smartphone-based Pokémon Go), use of a small, "smart" flat panel display positioned and oriented by hand.[45][46]

1987: Douglas George and Robert Morris create a working prototype of an astronomical telescope-based "heads-up display" system (a precursor concept to augmented reality) which superimposed in the telescope eyepiece, over the actual sky images, multi-intensity star, and celestial body images, and other relevant information.[47]

1990: The term augmented reality is attributed to Thomas P. Caudell, a former Boeing researcher.[48]

1992: Louis Rosenberg developed one of the first functioning AR systems, called Virtual Fixtures, at the United States Air Force Research Laboratory—Armstrong, that demonstrated benefit to human perception.[49]

1992: Steven Feiner, Blair MacIntyre and Doree Seligmann present an early paper on an AR system prototype, KARMA, at the Graphics Interface conference.

1993: Mike Abernathy, et al., report the first use of augmented reality in identifying space debris using Rockwell WorldView by overlaying satellite geographic trajectories on live telescope video.[50]

1993: A widely cited version of the paper above is published in Communications of the ACM – Special issue on computer augmented environments, edited by Pierre Wellner, Wendy Mackay, and Rich Gold.[51]

1995 - Augmented reality was described as a key technology in the reality-virtuality continuum.[52]

1995: S. Ravela et al. at University of Massachusetts introduce a vision-based system using monocular cameras to track objects (engine blocks) across views for augmented reality.[53][54]

2004: An outdoor helmet-mounted AR system was demonstrated by Trimble Navigation and the Human Interface Technology Laboratory (HIT lab).[55]

Smartphone AR and modern headsets

Meta 2 augmented reality headset from Meta

2009: ARToolkit was ported to Adobe Flash (FLARToolkit) by Saqoosha, bringing augmented reality to the web browser.[56]

2015: Microsoft announced the HoloLens augmented reality headset, which uses various sensors and a processing unit to display virtual imagery over the real world.[57]

2016: Niantic released Pokémon Go for iOS and Android in July 2016. The game quickly became one of the most popular smartphone applications and in turn spikes the popularity of augmented reality games.[58]

2018: Magic Leap launched the Magic Leap One augmented reality headset.[59] Leap Motion announced the Project North Star augmented reality headset, and later released it under an open source license.[60][61][62][63]

2019: Microsoft announced HoloLens 2 with significant improvements in terms of field of view and ergonomics.[64]

2022: Magic Leap launched the Magic Leap 2 headset.[65]

2023: Meta Quest 3, a mixed reality VR headset[66] was developed by Reality Labs, a division of Meta Platforms. In the same year, Apple Vision Pro was released.

2024: Meta Platforms revealed the Orion AR glasses prototype.[67]

Uses

Augmented reality for viewing furniture in the real world

Augmented reality has been explored for many uses, including education and business.[68] Some of the earliest cited examples include augmented reality used to support surgery by providing virtual overlays to guide medical practitioners, to AR content for astronomy and welding.[6][69] Example application areas described below include archaeology, architecture, commerce and education.

Education and training

AR for education and training can overlay 3D models and step-by-step guidance in real settings (e.g., anatomy, maintenance); systematic reviews report learning benefits alongside design and implementation caveats that vary by context and task.[70][71][72]

Navigation and maps

Augmented reality navigation overlays route guidance or hazard cues onto the real scene, typically via smartphone "live view" or in-vehicle heads-up displays. Research finds AR can improve wayfinding and driver situation awareness, but human-factors trade-offs (distraction, cognitive load, occlusion) matter for safety-critical use.[73][74][75][76]

See also: Head-up display, Automotive navigation system, Wayfinding

Commerce

In 2018, Apple announced USDZ, a file format based on Universal Scene Description from Pixar, which allows 3D objects to be viewed in AR on iPhones and iPads with iOS 12. Apple has created an AR QuickLook Gallery that allows people to experience augmented reality through their own Apple device.[77]

In 2018, Shopify, the Canadian e-commerce company, announced AR Quick Look integration. Their merchants will be able to upload 3D models of their products and their users will be able to tap on the models inside the Safari browser on their iOS devices to view them in their real-world environments.[78]

AR technology is used by furniture retailers such as IKEA, Houzz, and Wayfair.[79][80]

These retailers offer apps that allow consumers to view their products in their home prior to purchasing anything.[79][81]

In 2017, Ikea announced the Ikea Place app. It contains a catalogue of over 2,000 products—nearly the company's full collection of sofas, armchairs, coffee tables, and storage units which one can place anywhere in a room with their phone.[82] The app

made it possible to have 3D and true-to-scale models of furniture in the customer's living space. IKEA realized that their customers are not shopping in stores as often or making direct purchases anymore.[83][84] Shopify's acquisition of Primer, an AR app aims to push small and medium-sized sellers towards interactive AR shopping with easy to use AR integration and user experience for both merchants and consumers. AR helps the retail industry reduce operating costs. Merchants upload product information to the AR system, and consumers can use mobile terminals to search and generate 3D maps.[85]

## Surgery

One of the first applications of augmented reality was in healthcare, particularly to support the planning, practice, and training of surgical procedures. As far back as 1992, enhancing human performance during surgery was a formally stated objective when building the first augmented reality systems at U.S. Air Force laboratories.[1] AR provides surgeons with patient monitoring data in the style of a fighter pilot's heads-up display, and allows patient imaging records, including functional videos, to be accessed and overlaid. Examples include a virtual X-ray view based on prior tomography or on real-time images from ultrasound and confocal microscopy probes,[86] visualizing the position of a tumor in the video of an endoscope,[87] or radiation exposure risks from X-ray imaging devices.[88][89] AR can enhance viewing a fetus inside a mother's womb.[90] Siemens, Karl Storz and IRCAD have developed a system for laparoscopic liver surgery that uses AR to view sub-surface tumors and vessels.[91]

Guidance overlays and image fusion support planning and intraoperative visualization across several specialties; reviews note accuracy/registration constraints and workflow integration issues.[92][93][94]

The HoloLens is capable of displaying images for image-guided surgery.[95] As augmented reality advances, it finds increasing applications in healthcare. Augmented reality and similar computer based-utilities are being used to train medical professionals.[96][97] In healthcare, AR can be used to provide guidance during diagnostic and therapeutic interventions e.g. during surgery. Magee et al.,[98] for instance, describe the use of augmented reality for medical training in simulating ultrasound-guided needle placement. Recently, augmented reality began seeing adoption in neurosurgery, a field that requires heavy amounts of imaging before procedures.[99]

Smartglasses can be incorporated into the operating room to aide in surgical procedures; possibly displaying patient data conveniently while overlaying precise visual guides for the surgeon.[100][101] Augmented reality headsets like the Microsoft HoloLens have been theorized to allow for efficient sharing of information between doctors, in addition to providing a platform for enhanced training.[102][101] This can, in some situations (i.e. patient infected with contagious disease), improve doctor safety and reduce PPE use.[103] While mixed reality has lots of potential for enhancing healthcare, it does have some drawbacks too.[101] The technology may never fully integrate into scenarios when a patient is present, as there are ethical concerns surrounding the doctor not being able to see the patient.[101] Mixed reality is also useful

for healthcare education. For example, according to a 2022 report from the World Economic Forum, 85% of first-year medical students at Case Western Reserve University reported that mixed reality for teaching anatomy was "equivalent" or "better" than the in-person class.[104]

#### Flight training

Building on decades of perceptual-motor research in experimental psychology, researchers at the Aviation Research Laboratory of the University of Illinois at Urbana–Champaign used augmented reality in the form of a flight path in the sky to teach flight students how to land an airplane using a flight simulator. An adaptive augmented schedule in which students were shown the augmentation only when they departed from the flight path proved to be a more effective training intervention than a constant schedule.[43][105] Flight students taught to land in the simulator with the adaptive augmentation learned to land a light aircraft more quickly than students with the same amount of landing training in the simulator but with constant augmentation or without any augmentation.[43]

#### Military

Photograph of an Augmented Reality System for Soldier ARC4.

Augmented reality system for soldier ARC4 (U.S. Army 2017)

The first augmented reality system that integrated haptic 3D input was the Virtual Fixtures platform, which was developed in 1992 by Louis Rosenberg at the Armstrong Laboratories of the United States Air Force.[106] It enabled human users to control robots in real-world environments using a haptic controller. Published studies showed that by introducing virtual objects into the real world, significant performance increases could be achieved by human operators.[106][107][108]

An interesting early application of AR occurred when Rockwell International created video map overlays of satellite and orbital debris tracks to aid in space observations at Air Force Maui Optical System. In their 1993 paper "Debris Correlation Using the Rockwell WorldView System" the authors describe the use of map overlays applied to video from space surveillance telescopes. The map overlays indicated the trajectories of various objects in geographic coordinates. This allowed telescope operators to identify satellites, and also to identify and catalog potentially dangerous space debris.[50]

Starting in 2003 the US Army integrated the SmartCam3D augmented reality system into the Shadow Unmanned Aerial System to aid sensor operators using telescopic cameras to locate people or points of interest. The system combined fixed geographic information including street names, points of interest, airports, and railroads with live video from the camera system. The system offered a "picture in picture" mode that allows it to show a synthetic view of the area surrounding the camera's field of view. This helps solve a problem in which the field of view is so narrow that it excludes important context, as if "looking through a soda straw". The system displays real-time friend/foe/neutral location markers blended with live video, providing the operator with improved situational awareness.

Combat reality can be simulated and represented using complex, layered data and visual aides, most of which are head-mounted displays (HMD), which encompass any display technology that can be worn on the user's head.[109] Military training solutions are often built on commercial off-the-shelf (COTS) technologies, such as Improbable's synthetic environment platform, Virtual Battlespace 3 and VirTra, with the latter two platforms used by the United States Army. As of 2018, VirTra is being used by both civilian and military law enforcement to train personnel in a variety of scenarios, including active shooter, domestic violence, and military traffic stops.[110][111]

In 2017, the U.S. Army was developing the Synthetic Training Environment (STE), a collection of technologies for training purposes that was expected to include mixed reality. As of 2018, STE was still in development without a projected completion date. Some recorded goals of STE included enhancing realism and increasing simulation training capabilities and STE availability to other systems.[112]

It was claimed that mixed-reality environments like STE could reduce training costs, [113][114] such as reducing the amount of ammunition expended during training.[115] In 2018, it was reported that STE would include representation of any part of the world's terrain for training purposes.[116] STE would offer a variety of training opportunities for squad brigade and combat teams, including Stryker, armory, and infantry teams.[117]

Researchers at USAF Research Lab (Calhoun, Draper et al.) found an approximately two-fold increase in the speed at which UAV sensor operators found points of interest using this technology.[118] This ability to maintain geographic awareness quantitatively enhances mission efficiency. The system is in use on the US Army RQ-7 Shadow and the MQ-1C Gray Eagle Unmanned Aerial Systems.

In combat, AR can serve as a networked communication system that renders useful battlefield data onto a soldier's goggles in real time. From the soldier's viewpoint, people and various objects can be marked with special indicators to warn of potential dangers. Virtual maps and 360° view camera imaging can also be rendered to aid a soldier's navigation and battlefield perspective, and this can be transmitted to military leaders at a remote command center.[119] The combination of 360° view cameras visualization and AR can be used on board combat vehicles and tanks as circular review system.

AR can be an effective tool for virtually mapping out the 3D topologies of munition storages in the terrain, with the choice of the munitions combination in stacks and distances between them with a visualization of risk areas.[120][unreliable source?] The scope of AR applications also includes visualization of data from embedded munitions monitoring sensors.[120]

## Navigation

See also: Automotive navigation system

Illustration of a LandForm video map overlay marking runways, road, and buildings

LandForm video map overlay marking runways, road, and buildings during 1999 helicopter flight test

The NASA X-38 was flown using a hybrid synthetic vision system that overlaid map data on video to provide enhanced navigation for the spacecraft during flight tests from 1998 to 2002. It used the LandForm software which was useful for times of limited visibility, including an instance when the video camera window frosted over leaving astronauts to rely on the map overlays.[121] The LandForm software was also test flown at the Army Yuma Proving Ground in 1999. In the photo at right one can see the map markers indicating runways, air traffic control tower, taxiways, and hangars overlaid on the video. [122]

Industrial environments

In industrial environments, augmented reality is proving to have a substantial impact with use cases emerging across all aspect of the product lifecycle, starting from product design and new product introduction (NPI) to manufacturing to service and maintenance, to material handling and distribution. For example, labels were displayed on parts of a system to clarify operating instructions for a mechanic performing maintenance on a system.[123][124] Assembly lines benefited from the usage of AR. In addition to Boeing, BMW and Volkswagen were known for incorporating this technology into assembly lines for monitoring process improvements.[125][126][127] Big machines are difficult to maintain because of their multiple layers or structures. AR permits people to look through the machine as if with an x-ray, pointing them to the problem right away. [128]

Functional mockup

Augmented reality can be used to build mockups that combine physical and digital elements. With the use of simultaneous localization and mapping (SLAM), mockups can interact with the physical world to gain control of more realistic sensory experiences[129] like object permanence, which would normally be infeasible or extremely difficult to track and analyze without the use of both digital and physical aides. [130]

Translation

AR applications such as Word Lens can interpret the foreign text on signs and menus and, in a user's augmented view, re-display the text in the user's language. Spoken words of a foreign language can be translated and displayed in a user's view as printed subtitles.[131][132][133]

Human-in-the-loop operation of robots

Recent advances in mixed-reality technologies have renewed interest in alternative modes of communication for human-robot interaction.[134] Human operators wearing augmented reality headsets such as HoloLens can interact with (control and monitor) e.g. robots and lifting machines[135] on site in a digital factory setup. This use case typically requires real-time data communication between a mixed reality interface with the machine / process / system, which could be enabled by incorporating digital twin

technology.[135]

#### Real life ad-blocking

More than one in three surveyed advanced Internet users would like to edit out disturbing elements around them, such as garbage or graffiti.[136] They would like to even modify their surroundings by erasing street signs, billboard ads, and uninteresting shopping windows. Consumers want to use augmented reality glasses to change their surroundings into something that reflects their own personal opinions. Around two in five want to change the way their surroundings look and even how people appear to them. [citation needed]

#### Apps

Snapchat users have access to augmented reality features. In September 2017, Snapchat announced a feature called "Sky Filters" that will be available on its app. This new feature makes use of augmented reality to alter the look of a picture taken of the sky, much like how users can apply the app's filters to other pictures. Users can choose from sky filters such as starry night, stormy clouds, beautiful sunsets, and rainbow.[137]

Google launched an augmented reality feature for Google Maps on Pixel phones that identifies users' location and places signs and arrows on the device screen to show a user navigation directions.[138]

#### Concerns

##### Accidents

In a paper titled "Death by Pokémon GO", researchers at Purdue University's Krannert School of Management claim the game caused "a disproportionate increase in vehicular crashes and associated vehicular damage, personal injuries, and fatalities in the vicinity of locations, called PokéStops, where users can play the game while driving." [139] Using data from one municipality, the paper extrapolates what that might mean nationwide and concluded "the increase in crashes attributable to the introduction of Pokémon GO is 145,632 with an associated increase in the number of injuries of 29,370 and an associated increase in the number of fatalities of 256 over the period of 6 July 2016, through 30 November 2016." The authors extrapolated the cost of those crashes and fatalities at between \$2bn and \$7.3 billion for the same period.

##### Privacy concerns

Augmented reality devices that use cameras for 3D tracking or video passthrough depend on the ability of the device to record and analyze the environment in real time. Because of this, there are potential legal concerns over privacy.

According to recent studies, users are especially concerned that augmented reality smart glasses might compromise the privacy of others, potentially causing peers to become uncomfortable or less open during interactions.[140]

#### Notable researchers

Ronald Azuma is a scientist and author of works on AR.

Steve Mann formulated an earlier concept of mediated reality in the 1970s and 1980s, using cameras, processors, and display systems to modify visual reality to help people see better (dynamic range management), building computerized welding helmets, as well as "augmented reality" vision systems for use in everyday life. He is also an adviser to Meta.[141]

Dieter Schmalstieg and Daniel Wagner developed a marker tracking systems for mobile phones and PDAs in 2009.[142]

Ivan Sutherland invented the first augmented reality system, often called The Sword of Damocles, at Harvard University.

See also

ARTag – Fiducial marker system

Augmented reality-based testing

WebAR – Web technology

Automotive head-up display – Advanced driver assistance system

Bionic contact lens – Proposed device to display information

Computer-mediated reality – Ability to manipulate one's perception of reality through the use of a computer

Holography – Recording to reproduce a three-dimensional light field

List of augmented reality software

Location-based service – General class of computer program-level services that use location data to control systems

Mixed reality games – Types of electronic games involving reality and VR

Multimodal interaction – Form of human-machine interaction using multiple modes of input/output

Optical head-mounted display – Type of wearable device

Simulated reality – Concept of a false version of reality

Wearable computer – Small computing device worn on the body

Windows Mixed Reality – Mixed reality platform

Industrial augmented reality

Virtual retinal display

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For other uses, see Remote sensing (disambiguation). Not to be confused with Remote viewing.

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Synthetic aperture radar image of Death Valley colored using polarimetry

Remote sensing is the acquisition of information about an object or phenomenon without making physical contact with the object, in contrast to in situ or on-site observation. The term is applied especially to acquiring information about Earth and other planets. Remote sensing is used in numerous fields, including geophysics, geography, land surveying and most Earth science disciplines (e.g. exploration geophysics, hydrology, ecology, meteorology, oceanography, glaciology, geology). It also has military, intelligence, commercial, economic, planning, and humanitarian applications, among others.

In current usage, the term remote sensing generally refers to the use of satellite- or airborne-based sensor technologies to detect and classify objects on Earth. It includes the surface and the atmosphere and oceans, based on propagated signals (e.g. electromagnetic radiation). It may be split into "active" remote sensing (when a signal is emitted by a sensor mounted on a satellite or aircraft to the object and its reflection is detected by the sensor) and "passive" remote sensing (when the reflection of sunlight is detected by the sensor).[1][2][3][4][5]

Overview

Duration: 4 minutes and 22 seconds.4:22

This video is about how Landsat was used to identify areas of conservation in the Democratic Republic of the Congo, and how it was used to help map an area called MLW in the north.

Remote sensing can be divided into two types of methods: Passive remote sensing and active remote sensing. Passive sensors gather radiation that is emitted or reflected by the object or surrounding areas. Reflected sunlight is the most common source of radiation measured by passive sensors. Examples of passive remote sensors include film photography, infrared, charge-coupled devices, and radiometers. Active collection, on the other hand, emits energy in order to scan objects and areas whereupon a sensor then detects and measures the radiation that is reflected or backscattered from the target. RADAR and LiDAR are examples of active remote sensing where the time delay between emission and return is measured, establishing the location, speed and direction of an object.

### Illustration of remote sensing

Remote sensing makes it possible to collect data of dangerous or inaccessible areas. Remote sensing applications include monitoring deforestation in areas such as the Amazon Basin, glacial features in Arctic and Antarctic regions, and depth sounding of coastal and ocean depths. Military collection during the Cold War made use of stand-off collection of data about dangerous border areas. Remote sensing also replaces costly and slow data collection on the ground, ensuring in the process that areas or objects are not disturbed.

Orbital platforms collect and transmit data from different parts of the electromagnetic spectrum, which in conjunction with larger scale aerial or ground-based sensing and analysis, provides researchers with enough information to monitor trends such as El Niño and other natural long and short term phenomena. Other uses include different areas of the earth sciences such as natural resource management, agricultural fields such as land usage and conservation,[6][7] greenhouse gas monitoring,[8] oil spill detection and monitoring,[9] and national security and overhead, ground-based and stand-off collection on border areas.[10]

### Types of data acquisition techniques

The basis for multispectral collection and analysis is that of examined areas or objects that reflect or emit radiation that stand out from surrounding areas. For a summary of major remote sensing satellite systems see the overview table.

### Applications of remote sensing

Further information: Remote sensing (geology) and Remote sensing in archaeology  
See also: Mobile radar observation of tornadoes

### Radar image of Aswan Dam, Egypt taken by Umbra

Conventional radar is mostly associated with air traffic control, early warning, and certain large-scale meteorological data. Doppler radar is used by local law enforcements' monitoring of speed limits and in enhanced meteorological collection such as wind speed and direction within weather systems in addition to precipitation location and intensity. Other types of active collection includes plasmas in the ionosphere. Interferometric synthetic aperture radar is used to produce precise digital elevation models of large scale terrain (See RADARSAT, TerraSAR-X, Magellan). Laser and radar altimeters on satellites have provided a wide range of data. By measuring the bulges of water caused by gravity, they map features on the seafloor to a resolution of a mile or so. By measuring the height and wavelength of ocean waves, the altimeters measure wind speeds and direction, and surface ocean currents and directions. Ultrasound (acoustic) and radar tide gauges are used to measure sea level, tides and wave direction in coastal and offshore tide gauges.

Light detection and ranging (LiDAR) is used for weapon ranging, laser illuminated homing of projectiles, and to detect and measure the concentration of various chemicals

in the atmosphere while airborne LiDAR can be used to measure the heights of objects and features on the ground more accurately than radar technology. LiDAR can be used to detect ground surface changes typically by creating Digital Surface Models (DSMs) or Digital Elevation Models (DEMs).[11] Vegetation remote sensing is a principal application of LIDAR.[12]

The most common instruments in use are radiometers and photometers, which collect reflected and emitted radiation in a wide range of frequencies. The most prevalent of these frequencies are visible and infrared sensors, followed by microwave, gamma-ray, and rarely, ultraviolet. They may also be used to detect the emission spectra of various chemicals, providing data on chemical concentrations in the atmosphere. Radiometers are also used at night, as artificial light emissions are a key signature of human activity. [13] Applications include remote sensing of population, GDP, and damage to infrastructure from war or disasters. Radiometers and radar onboard of satellites can be also used to monitor volcanic eruptions[14][15]

Examples of remote sensing equipment deployed by or interfaced with oceanographic research vessels.[16]

Spectropolarimetric Imaging has been reported to be useful for target tracking purposes by researchers at the U.S. Army Research Laboratory. They determined that manmade items possess polarimetric signatures that are not found in natural objects. These conclusions were drawn from the imaging of military trucks, like the Humvee, and trailers with their acousto-optic tunable filter dual hyperspectral and spectropolarimetric VNIR Spectropolarimetric Imager.[17][18]

Stereographic pairs of aerial photographs have often been used to make topographic maps by imagery and terrain analysts in trafficability and highway departments for potential routes, in addition to modelling terrestrial habitat features.[19][20][21]

Simultaneous multi-spectral platforms such as Landsat have been in use since the early 1970s. These thematic mappers take images in multiple wavelengths and are usually found on Earth observation satellites, including (for example) the Landsat program or the IKONOS satellite. Maps of land cover and land use from thematic mapping can be used to prospect for minerals, detect or monitor land usage, detect invasive vegetation, deforestation, and examine the health of indigenous plants and crops (satellite crop monitoring), including entire farming regions or forests.[22] Prominent scientists using remote sensing for this purpose include Janet Franklin and Ruth DeFries. Landsat images are used by regulatory agencies such as KYDOW to indicate water quality parameters including Secchi depth, chlorophyll density, and total phosphorus content. Weather satellites are used in meteorology and climatology.

Hyperspectral imaging produces image cubes where each pixel has full spectral information with imaging narrow spectral bands over a contiguous spectral range. Hyperspectral imagers are used in various applications including mineralogy, biology,

defence, and environmental measurements. Within the scope of the combat against desertification, remote sensing allows researchers to follow up and monitor risk areas in the long term, to determine desertification factors, to support decision-makers in defining relevant measures of environmental management, and to assess their impacts. [23] Remotely sensed multi- and hyperspectral images can be used for assessing biodiversity at different spatial scales. Since the spectral properties of different plants species are unique, it is possible to get information about properties that relates to biodiversity such as habitat heterogeneity, spectral diversity and plant functional trait. [24][25][26] Remote sensing has also been used to detect rare plants to aid in conservation efforts. Prediction, detection, and the ability to record biophysical conditions were possible from medium to very high resolutions.[27] Remote sensing is often utilized in the collection of agricultural and environmental statistics, usually combining classified satellite images with ground truth data collected on a sample selected on an area sampling frame[28]

### Geodetic

Further information: Satellite geodesy

Geodetic remote sensing can be gravimetric or geometric. Overhead gravity data collection was first used in aerial submarine detection. This data revealed minute perturbations in the Earth's gravitational field that may be used to determine changes in the mass distribution of the Earth, which in turn may be used for geophysical studies, as in GRACE. Geometric remote sensing includes position and deformation imaging using InSAR, LIDAR, etc.[29]

### Acoustic and near-acoustic

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Three main types of acoustic and near-acoustic remote sensing exist: Sonar – passive sonar, listening for the sound made by another object (a vessel, a whale etc.); active sonar, emitting pulses of sounds and listening for echoes, used for detecting, ranging and measurements of underwater objects and terrain. Seismograms taken at different locations can locate and measure earthquakes (after they occur) by comparing the relative intensity and precise timings. Ultrasound acoustic sensing is made up of ultrasound sensors that emit high-frequency pulses and listening for echoes, used for detecting water waves and water level, as in tide gauges or for towing tanks.

To coordinate a series of large-scale observations, most sensing systems depend on the following: platform location and the orientation of the sensor. High-end instruments now often use positional information from satellite navigation systems. The rotation and orientation are often provided within a degree or two with electronic compasses. Compasses can measure not just azimuth (i. e. degrees to magnetic north), but also altitude (degrees above the horizon), since the magnetic field curves into the Earth at different angles at different latitudes. More exact orientations require gyroscopic-aided

orientation, periodically realigned by different methods including navigation from stars or known benchmarks.

## Data characteristics

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The quality of remote sensing data consists of its spatial, spectral, radiometric and temporal resolutions.

### Spatial resolution

The size of a pixel that is recorded in a raster image – typically pixels may correspond to square areas ranging in side length from 1 to 1,000 metres (3.3 to 3,280.8 ft).

### Spectral resolution

The bandwidth of the different frequency bands recorded – usually, this is related to the number of frequency bands recorded by the platform. Current Landsat collection is that of seven bands, including several in the infrared spectrum, ranging from a spectral resolution of 0.7 to 2.1  $\mu\text{m}$ . The Hyperion sensor on Earth Observing-1 resolves 220 bands from 0.4 to 2.5  $\mu\text{m}$ , with a spectral resolution of 0.10 to 0.11  $\mu\text{m}$  per band.

### Radiometric resolution

The number of different intensities of radiation the sensor is able to distinguish.

Typically, this ranges from 8 to 14 bits, corresponding to 256 levels of the gray scale and up to 16,384 intensities or "shades" of colour, in each band. It also depends on the instrument noise.

### Temporal resolution

The frequency of flyovers by the satellite or plane, and is only relevant in time-series studies or those requiring an averaged or mosaic image as in deforesting monitoring. This was first used by the intelligence community where repeated coverage revealed changes in infrastructure, the deployment of units or the modification/introduction of equipment. Cloud cover over a given area or object makes it necessary to repeat the collection of said location.

### Data processing

In order to create sensor-based maps, most remote sensing systems expect to extrapolate sensor data in relation to a reference point including distances between known points on the ground. This depends on the type of sensor used. For example, in conventional photographs, distances are accurate in the center of the image, with the distortion of measurements increasing the farther you get from the center. Another factor is that of the platen against which the film is pressed can cause severe errors when photographs are used to measure ground distances. The step in which this problem is resolved is called georeferencing and involves computer-aided matching of points in the image (typically 30 or more points per image) which is extrapolated with the use of an established benchmark, "warping" the image to produce accurate spatial data. As of the early 1990s, most satellite images are sold fully georeferenced.

In addition, images may need to be radiometrically and atmospherically corrected.

#### Radiometric correction

Allows avoidance of radiometric errors and distortions. The illumination of objects on the Earth's surface is uneven because of different properties of the relief. This factor is taken into account in the method of radiometric distortion correction.[30] Radiometric correction gives a scale to the pixel values, e. g. the monochromatic scale of 0 to 255 will be converted to actual radiance values.

#### Topographic correction (also called terrain correction)

In rugged mountains, as a result of terrain, the effective illumination of pixels varies considerably. In a remote sensing image, the pixel on the shady slope receives weak illumination and has a low radiance value, in contrast, the pixel on the sunny slope receives strong illumination and has a high radiance value. For the same object, the pixel radiance value on the shady slope will be different from that on the sunny slope. Additionally, different objects may have similar radiance values. These ambiguities seriously affected remote sensing image information extraction accuracy in mountainous areas. It became the main obstacle to the further application of remote sensing images. The purpose of topographic correction is to eliminate this effect, recovering the true reflectivity or radiance of objects in horizontal conditions. It is the premise of quantitative remote sensing application.

#### Atmospheric correction

Elimination of atmospheric haze by rescaling each frequency band so that its minimum value (usually realised in water bodies) corresponds to a pixel value of 0. The digitizing of data also makes it possible to manipulate the data by changing gray-scale values. Interpretation is the critical process of making sense of the data. The first application was that of aerial photographic collection which used the following process; spatial measurement through the use of a light table in both conventional single or stereographic coverage, added skills such as the use of photogrammetry, the use of photomosaics, repeat coverage, Making use of objects' known dimensions in order to detect modifications. Image Analysis is the recently developed automated computer-aided application that is in increasing use.

Object-Based Image Analysis (OBIA) is a sub-discipline of GI-Science devoted to partitioning remote sensing (RS) imagery into meaningful image-objects, and assessing their characteristics through spatial, spectral and temporal scale.

Old data from remote sensing is often valuable because it may provide the only long-term data for a large extent of geography. At the same time, the data is often complex to interpret, and bulky to store. Modern systems tend to store the data digitally, often with lossless compression. The difficulty with this approach is that the data is fragile, the format may be archaic, and the data may be easy to falsify. One of the best systems for archiving data series is as computer-generated machine-readable microfiche, usually in typefonts such as OCR-B, or as digitized half-tone images. Microfiches survive well in standard libraries, with lifetimes of several centuries. They can be created, copied, filed and retrieved by automated systems. They are about as compact as archival magnetic

media, and yet can be read by human beings with minimal, standardized equipment.

Generally speaking, remote sensing works on the principle of the inverse problem: while the object or phenomenon of interest (the state) may not be directly measured, there exists some other variable that can be detected and measured (the observation) which may be related to the object of interest through a calculation. The common analogy given to describe this is trying to determine the type of animal from its footprints. For example, while it is impossible to directly measure temperatures in the upper atmosphere, it is possible to measure the spectral emissions from a known chemical species (such as carbon dioxide) in that region. The frequency of the emissions may then be related via thermodynamics to the temperature in that region.

#### Data processing levels

To facilitate the discussion of data processing in practice, several processing "levels" were first defined in 1986 by NASA as part of its Earth Observing System[31] and steadily adopted since then, both internally at NASA (e. g.,[32]) and elsewhere (e. g., [33]); these definitions are:

#### Level Description

0 Reconstructed, unprocessed instrument and payload data at full resolution, with any and all communications artifacts (e. g., synchronization frames, communications headers, duplicate data) removed.

1a Reconstructed, unprocessed instrument data at full resolution, time-referenced, and annotated with ancillary information, including radiometric and geometric calibration coefficients and georeferencing parameters (e. g., platform ephemeris) computed and appended but not applied to the Level 0 data (or if applied, in a manner that level 0 is fully recoverable from level 1a data).

1b Level 1a data that have been processed to sensor units (e. g., radar backscatter cross section, brightness temperature, etc.); not all instruments have Level 1b data; level 0 data is not recoverable from level 1b data.

2 Derived geophysical variables (e. g., ocean wave height, soil moisture, ice concentration) at the same resolution and location as Level 1 source data.

3 Variables mapped on uniform spacetime grid scales, usually with some completeness and consistency (e. g., missing points interpolated, complete regions mosaicked together from multiple orbits, etc.).

4 Model output or results from analyses of lower level data (i. e., variables that were not measured by the instruments but instead are derived from these measurements).

A Level 1 data record is the most fundamental (i. e., highest reversible level) data record that has significant scientific utility, and is the foundation upon which all subsequent data sets are produced. Level 2 is the first level that is directly usable for most scientific applications; its value is much greater than the lower levels. Level 2 data sets tend to be less voluminous than Level 1 data because they have been reduced temporally, spatially, or spectrally. Level 3 data sets are generally smaller than lower level data sets and thus can be dealt with without incurring a great deal of data handling overhead.

These data tend to be generally more useful for many applications. The regular spatial



and temporal organization of Level 3 datasets makes it feasible to readily combine data from different sources.

While these processing levels are particularly suitable for typical satellite data processing pipelines, other data level vocabularies have been defined and may be appropriate for more heterogeneous workflows.

### Applications

Satellite images provide very useful information to produce statistics on topics closely related to the territory, such as agriculture, forestry or land cover in general. The first large project to apply Landsat 1 images for statistics was LACIE (Large Area Crop Inventory Experiment), run by NASA, NOAA and the USDA in 1974–77.[34][35] Many other application projects on crop area estimation have followed, including the Italian AGRIT project and the MARS project of the Joint Research Centre (JRC) of the European Commission.[36] Forest area and deforestation estimation have also been a frequent target of remote sensing projects,[37][38] the same as land cover and land use[39]

Ground truth or reference data to train and validate image classification require a field survey if we are targeting annual crops or individual forest species, but may be substituted by photointerpretation if we look at wider classes that can be reliably identified on aerial photos or satellite images. It is relevant to highlight that probabilistic sampling is not critical for the selection of training pixels for image classification, but it is necessary for accuracy assessment of the classified images and area estimation.[40][41][42] Additional care is recommended to ensure that training and validation datasets are not spatially correlated.[43]

We suppose now that we have classified images or a land cover map produced by visual photo-interpretation, with a legend of mapped classes that suits our purpose, taking again the example of wheat. The straightforward approach is counting the number of pixels classified as wheat and multiplying by the area of each pixel. Many authors have noticed that estimator is that it is generally biased because commission and omission errors in a confusion matrix do not compensate each other[44][45][46]

The main strength of classified satellite images or other indicators computed on satellite images is providing cheap information on the whole target area or most of it. This information usually has a good correlation with the target variable (ground truth) that is usually expensive to observe in an unbiased and accurate way. Therefore, it can be observed on a probabilistic sample selected on an area sampling frame. Traditional survey methodology provides different methods to combine accurate information on a sample with less accurate, but exhaustive, data for a covariable or proxy that is cheaper to collect. For agricultural statistics, field surveys are usually required, while photo-interpretation may be better for land cover classes that can be reliably identified on aerial photographs or high resolution satellite images. Additional uncertainty can appear because of imperfect reference data (ground truth or similar).[47][48]

Some options are: ratio estimator, regression estimator,[49] calibration estimators[50] and small area estimators[39]

If we target other variables, such as crop yield or leaf area, we may need different indicators to be computed from images, such as the NDVI, a good proxy to chlorophyll activity.[28]

## History

### The TR-1 reconnaissance/surveillance aircraft

The 2001 Mars Odyssey used spectrometers and imagers to hunt for evidence of past or present water and volcanic activity on Mars.

The modern discipline of remote sensing arose with the development of flight. The balloonist G. Tournachon (alias Nadar) made photographs of Paris from his balloon in 1858.[51] Messenger pigeons, kites, rockets and unmanned balloons were also used for early images. With the exception of balloons, these first, individual images were not particularly useful for map making or for scientific purposes.

Systematic aerial photography was developed for military surveillance and reconnaissance purposes beginning in World War I.[52] After WWI, remote sensing technology was quickly adapted to civilian applications.[53] This is demonstrated by the first line of a 1941 textbook titled "Aerophotography and Aerosurveying," which stated the following:

"There is no longer any need to preach for aerial photography-not in the United States-for so widespread has become its use and so great its value that even the farmer who plants his fields in a remote corner of the country knows its value."

—James Bagley[53]

The development of remote sensing technology reached a climax during the Cold War with the use of modified combat aircraft such as the P-51, P-38, RB-66 and the F-4C, or specifically designed collection platforms such as the U2/TR-1, SR-71, A-5 and the OV-1 series both in overhead and stand-off collection.[54] A more recent development is that of increasingly smaller sensor pods such as those used by law enforcement and the military, in both manned and unmanned platforms. The advantage of this approach is that this requires minimal modification to a given airframe. Later imaging technologies would include infrared, conventional, Doppler and synthetic aperture radar.[55]

The development of artificial satellites in the latter half of the 20th century allowed remote sensing to progress to a global scale as of the end of the Cold War.[56] Instrumentation aboard various Earth observing and weather satellites such as Landsat, the Nimbus and more recent missions such as RADARSAT and UARS provided global measurements of various data for civil, research, and military purposes. Space probes

to other planets have also provided the opportunity to conduct remote sensing studies in extraterrestrial environments, synthetic aperture radar aboard the Magellan spacecraft provided detailed topographic maps of Venus, while instruments aboard SOHO allowed studies to be performed on the Sun and the solar wind, just to name a few examples. [57][58]

Recent developments include, beginning in the 1960s and 1970s, the development of image processing of satellite imagery. The use of the term "remote sensing" began in the early 1960s when Evelyn Pruitt realized that advances in science meant that aerial photography was no longer an adequate term to describe the data streams being generated by new technologies.[59][60] With assistance from her fellow staff member at the Office of Naval Research, Walter Bailey, she coined the term "remote sensing".[61] [62] Several research groups in Silicon Valley including NASA Ames Research Center, GTE, and ESL Inc. developed Fourier transform techniques leading to the first notable enhancement of imagery data. In 1999 the first commercial satellite (IKONOS) collecting very high resolution imagery was launched.[63]

#### Training and education

Remote sensing has a growing relevance in the modern information society. It represents a key technology as part of the aerospace industry and bears increasing economic relevance – new sensors e.g. TerraSAR-X and RapidEye are developed constantly and the demand for skilled labour is increasing steadily. Furthermore, remote sensing exceedingly influences everyday life, ranging from weather forecasts to reports on climate change or natural disasters. As an example, 80% of the German students use the services of Google Earth; in 2006 alone the software was downloaded 100 million times. But studies have shown that only a fraction of them know more about the data they are working with.[64] There exists a huge knowledge gap between the application and the understanding of satellite images. Remote sensing only plays a tangential role in schools, regardless of the political claims to strengthen the support for teaching on the subject.[65] A lot of the computer software explicitly developed for school lessons has not yet been implemented due to its complexity. Thereby, the subject is either not at all integrated into the curriculum or does not pass the step of an interpretation of analogue images. In fact, the subject of remote sensing requires a consolidation of physics and mathematics as well as competences in the fields of media and methods apart from the mere visual interpretation of satellite images.

Many teachers have great interest in the subject "remote sensing", being motivated to integrate this topic into teaching, provided that the curriculum is considered. In many cases, this encouragement fails because of confusing information.[66] In order to integrate remote sensing in a sustainable manner organizations like the EGU or Digital Earth[67] encourage the development of learning modules and learning portals. Examples include: FIS – Remote Sensing in School Lessons,[68] Geospektiv,[69] Ychange,[70] or Spatial Discovery,[71] to promote media and method qualifications as well as independent learning.

## Software

Main article: Remote sensing software

Remote sensing data are processed and analyzed with computer software, known as a remote sensing application. A large number of proprietary and open source applications exist to process remote sensing data.

## Remote Sensing with gamma rays

There are applications of gamma rays to mineral exploration through remote sensing. In 1972 more than \$2 million were spent on remote sensing applications with gamma rays to mineral exploration. Gamma rays are used to search for deposits of uranium. By observing radioactivity from potassium, porphyry copper deposits can be located. A high ratio of uranium to thorium has been found to be related to the presence of hydrothermal copper deposits. Radiation patterns have also been known to occur above oil and gas fields, but some of these patterns were thought to be due to surface soils instead of oil and gas.[72]

## Satellites

This section is an excerpt from Earth observation satellite.[edit]

Six Earth observation satellites comprising the A-train satellite constellation as of 2014. An Earth observation satellite or Earth remote sensing satellite is a satellite used or designed for Earth observation (EO) from orbit, including spy satellites and similar ones intended for non-military uses such as environmental monitoring, meteorology, cartography and others. The most common type are Earth imaging satellites, that take satellite images, analogous to aerial photographs; some EO satellites may perform remote sensing without forming pictures, such as in GNSS radio occultation.

The first occurrence of satellite remote sensing can be dated to the launch of the first artificial satellite, Sputnik 1, by the Soviet Union on October 4, 1957.[73] Sputnik 1 sent back radio signals, which scientists used to study the ionosphere.[74] The United States Army Ballistic Missile Agency launched the first American satellite, Explorer 1, for NASA's Jet Propulsion Laboratory on January 31, 1958. The information sent back from its radiation detector led to the discovery of the Earth's Van Allen radiation belts.[75] The TIROS-1 spacecraft, launched on April 1, 1960, as part of NASA's Television Infrared Observation Satellite (TIROS) program, sent back the first television footage of weather patterns to be taken from space.[73]

In 2008, more than 150 Earth observation satellites were in orbit, recording data with both passive and active sensors and acquiring more than 10 terabits of data daily.[73] By 2021, that total had grown to over 950, with the largest number of satellites operated by US-based company Planet Labs.[76]

Most Earth observation satellites carry instruments that should be operated at a relatively low altitude. Most orbit at altitudes above 500 to 600 kilometers (310 to 370 mi). Lower orbits have significant air-drag, which makes frequent orbit reboost

maneuvers necessary. The Earth observation satellites ERS-1, ERS-2 and Envisat of European Space Agency as well as the MetOp spacecraft of EUMETSAT are all operated at altitudes of about 800 km (500 mi). The Proba-1, Proba-2 and SMOS spacecraft of European Space Agency are observing the Earth from an altitude of about 700 km (430 mi). The Earth observation satellites of UAE, DubaiSat-1 & DubaiSat-2 are also placed in Low Earth orbits (LEO) orbits and providing satellite imagery of various parts of the Earth.[77][78]

To get global coverage with a low orbit, a polar orbit is used. A low orbit will have an orbital period of about 100 minutes and the Earth will rotate around its polar axis about 25° between successive orbits. The ground track moves towards the west 25° each orbit, allowing a different section of the globe to be scanned with each orbit. Most are in Sun-synchronous orbits.

A geostationary orbit, at 36,000 km (22,000 mi), allows a satellite to hover over a constant spot on the earth since the orbital period at this altitude is 24 hours. This allows uninterrupted coverage of more than 1/3 of the Earth per satellite, so three satellites, spaced 120° apart, can cover the whole Earth. This type of orbit is mainly used for meteorological satellites.

See also

Coastal management – Preventing flooding and erosion of shorelines

Geophysical survey – Systematic collection of geophysical data for spatial studies

Land change science – Interdisciplinary study of changes in climate, land use, and land cover

List of Earth observation satellites

Normalized difference water index – Remote sensing-derived indexes related to liquid water

Orthophoto – Geometrically corrected aerial photograph

Pictometry – Aerial survey technique

Radiometry – Techniques for measuring electromagnetic radiation

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The Gospel of Thomas is a non-canonical text of Jesus' secret sayings, focusing on inner spiritual knowledge ("the Kingdom is inside you"), while the Shiva Gita (part of the Hindu Skanda Purana) is a dialogue where Lord Shiva reveals divine wisdom, especially regarding devotion and the ultimate reality (Brahman), with both texts sharing mystical themes of inner realization and unity, often explored in commentaries linking them to yogic/Gnostic thought, though they come from distinct religious traditions (early Christianity/Gnosticism vs. Hinduism).

## Gospel of Thomas

Nature: A collection (or "sayings gospel") of 114 sayings of Jesus, discovered at Nag Hammadi in 1945, without a narrative story.

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The Gospel of Thomas (also known as the Coptic Gospel of Thomas) is a non-canonical sayings gospel. comprises 114 sayings attributed to Jesus.

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The Gospel of Thomas - provided in multiple translations, along with a vast collection of material about the Thomas tradition. Part of the Gnostic Society ...

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The Christ of India – the "Lost Years" of Jesus & ...

Original Christianity and Original Yoga

<https://ocoy.org> › Original Christianity

The unique story of Jesus in India, Saint Thomas his Apostle, and how the Dharma of India became part of Saint Thomas Christianity.

Gospel of Thomas

Wikipedia

[https://en.wikipedia.org › wiki › Gospel\\_of\\_Thomas](https://en.wikipedia.org/wiki/Gospel_of_Thomas)

The Gospel of Thomas (also known as the Coptic Gospel of Thomas) is a non-canonical sayings gospel. comprises 114 sayings attributed to Jesus.

Infancy Gospel of Thomas

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The Gospel of Thomas: An Overview

The Bart Ehrman Blog

[https://ehrmanblog.org › the-gospel-of-thomas-an-over...](https://ehrmanblog.org/the-gospel-of-thomas-an-over...)

Aug 28, 2018 — The Gospel of Thomas is a collection of 114 sayings of Jesus. The sayings are not arranged in any recognizable order. Nor are they set within any context.

Missing: Shiva Gita

The Gospel of Thomas: The OLDEST Teachings of Yeshua ...

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The Gospel of Thomas is one of the most enigmatic early Christian texts for both scholars who study it and those who read it.

Missing: Shiva Gita

Gospel of Thomas — Gospels.net

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Jesus said, "This heaven will disappear, and the one above it will disappear too. Those who are dead aren't alive, and those who are living won't die.

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AI Overview

Upanishads are foundational Hindu philosophical texts exploring ultimate reality, while "Shiva Rahasya" refers to secret Shaivite teachings, often found within or related to Upanishads like the Shukarahasya Upanishad, which reveals Shiva's nature to his son Shuka, and texts like the Shivagauri Samvaade Upanishad, a profound dialogue revealing the formless Shiva within the Linga, emphasizing direct experience over rituals for liberation (Moksha). These "secret" (Rahasya) texts reveal Shiva as the non-dual Brahman (Ultimate Reality), accessible through knowledge and meditation on sacred phrases (Mahavakyas) rather than mere rituals.

Key Concepts

Upanishads: The concluding part of the Vedas, focusing on philosophy, consciousness, and the essence of reality (Brahman).

Rahasya (Secret/Mystery): Refers to hidden, profound knowledge, often revealed in dialogues between deities or sages, meant for serious seekers.

Shiva: The supreme deity in Shaivism, often identified with Brahman, the formless, all-pervading consciousness.

Key Upanishads related to Shiva Rahasya

Shukarahasya Upanishad: A discourse where Lord Shiva teaches his son, Shuka, about

the four great Vedic Mahavakyas, leading to liberation (Jivanmukti).

Shivagauri Samvaade Upanishad (from Maheshvara Khanda): A dialogue where Shiva explains to Gauri that the Linga represents formless, non-dual Awareness, transcending physical form.

Atharvashikha Upanishad: A Shaiva Upanishad associating Om with Shiva as Brahman, focusing on meditative chanting.

Core Teachings

Beyond Form & Ritual: These texts emphasize experiencing Shiva as the formless, universal consciousness (Brahman), transcending physical manifestations or rituals.

MahaVakyas: Key sacred statements from the Vedas are presented as tools for meditation to achieve liberation.

Direct Experience: The ultimate goal is spiritual freedom (Moksha) through deep understanding and meditation, rather than relying solely on external rites.

In essence, the Upanishads provide the philosophical framework, while texts like Shiva Rahasya delve into specific, profound secrets of Shiva, aiming to guide seekers to direct realization of the divine within.

When Shiva Himself Declares: The Hidden Upanishadic ...

Jul 6, 2025 — In the vast ocean of Indian spiritual literature, few gems shine as purely and mysteriously as the Shivagauri Samvaade ...

Reddit

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Shukarahasya Upanishad - Wikipedia

The Shukarahasya Upanishad (Sanskrit: शुक्रहस्य उपनिषद्, IAST: Śukarahasya Upaniṣad), also called Rahasya Upanishad, is a Sanskrit ...

Wikipedia

Upanishads - Wikipedia

The Upanishads (/ʊˈpɪnɪʃədz/; Sanskrit: उपनिषद्, IAST: Upaniṣad, pronounced [ˈupənɪʃəd]) are Sanskrit texts of the late Vedic and ...

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3 Hidden Secrets of the Upanishads Explained in 15 Minutes ...

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SHIVA is NOT what you think! | Upanishads Reveals the Truth...

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The Upanishads reveal the profound truth that Atman, the individual self, is identical to Brahman, the ultimate reality, and we are all Shiva.

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Upanishads associated with Shaktism. Sannyasa (renunciation, Shaivism (god Shiva), Upanishads are categorized as "sectarian" of a specific Hindu tradition such ...

Principal Upanishads

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Upanishad Lingakathanam, a fragment from the legendary Shiva Rahasya housed within the Maheshvara Khanda.

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Suka Rahasya Upanishad

Swami Vivekananda Quotes - VivekaVani

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Aug 5, 2015 — Rahasya Upanishad: the divine sages, worshipping Brahma, Shiva: O

Lord of great wisdom, who has vowed firmly to break the bondage (of life). ...  
Is Shiva Rahasya book authentic?

Hinduism Stack Exchange

<https://hinduism.stackexchange.com/questions/is-shi...>

Feb 17, 2018 — Yes it is authentic. Because it has all the commentary of Acharya Somananda from Kashmir Shaivism. Let's see what wikipedia says about his lineage.  
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Nov 29, 2018

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Dec 30, 2019

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Introduction to Upanishads and their classification

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Dakshinamurthi Upanishad Dakshinamurthy is the teacher form of Shiva. He teaches without talking. This Upanishad gives the Dakshinamurthi ...

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Shivarahasya Purana (Sanskrit: शिवरहस्यपुराणम्; śiva rahasya purāṇa) is one of the 'Shaiva Upapuranas' or ancillary Purana regarding Shiva and Shaivite worship and is also considered 'Indian epic poetry' (Itihāsa).

## Content

The book is dedicated to detailed explanation of Shaivite thoughts, rituals and religious myths. The book consists of twelve parts and has about one hundred thousand verses.  
[1]

## Ribhu Gita

Murti of Sage Ribhu with his enlightened disciple Nidagha sitting on his right at the SAT Temple (Society of Abidance in Truth)

Stone carving of Sage Ribhu instructing Nidagha on the wall of Sri Sadisvara Mandiram[2] in the SAT Temple

The Ribhu Gita (Sanskrit: ऋभुगीता; ṛbhugītā) is an acclaimed song at the heart of this purana whose content has been described as advaita, monist or nondual. The Ribhu Gita forms the sixth part of Shivarahasya Purana. It is one of the few works attributed to the Hindu sage Ribhu. In the span of about two thousand verses, it recounts the

dialogue between sage Ribhu and sage Nidagha concerning the Ātman and Brahman, which takes place on the slopes of Mount Kedara in the Himalayas.[3]

Dialogues between Ribhu and Nidagha on the Supreme Brahman are presented elsewhere, such as in the Tejobindu Upanishad of Krishna Yajurveda, the Mahopanishad of Sama Veda, the Annapoornopanisha of Atharva Veda and the Varahopanish of Krishna Yajurveda.[1]

The Ribhu Gita uses negation (neti neti) and affirmation, reinforced by frequent repetition and exhaustive elaboration, to discuss the nature of reality under various headings. These include:[3]

Existence-Awareness-Self

Shiva is equated with Sat-Chit-Ananda, described as the screen on which Shakti is projected as the moving picture of the universe.

Jivanmukta - one who is liberated while still physically alive, who abides in the blissful peace of Sat-Chit-Ananda.

Videhamukta - one who is liberated after death through the continued repetition of "I am Self-Brahman."

The True Samadhi

Sahaja Samadhi

Maturing of Sahaja Samadhi

Mukti is Shiva's grace

Everything is Sat-Chit-Ananda

The Natural State

Tamil translation

The Brahmin Vedic scholar Bikshu Sastrigal translated the work under the name of Ulaganatha Swamigal. The Tamil version is a free translation of the original Sanskrit text and consists of 1,964 verses.[3] This Tamil translation is published by Sri Ramanasramam, Tiruvannamalai, Tamil Nadu, India.

English translation

In 1984, "The Essence of Ribhu Gita", the English abridgement of the work by Professor N.R. Krishnamoorthi Aiyer, including selected passages made familiar by Sri Ramana, was published by Sri Ramanasramam. Professor N.R. Krishnamoorthi Aiyer, was encouraged by Sri Ramana to study the Ribhu Gita as his sadhana. The book consists of 122 verses from the original Tamil work conveying the essence of the original, and not as a word for word translation.[3]

In 1994, "The Ribhu Gita" was published by the Society of Abidance in Truth. It is a complete English translation of the entire text. The translation was done Dr. H. Ramamoorthy and assisted by Nome. This book takes the approach to convey the profound spiritual teaching while maintaining the translation as literal as possible.[1]

In 2000, "The Song of Ribhu" was published by the Society of Abidance in Truth. It is a

complete English translation of the Tamil Ribhu Gita. The translation was done Dr. H. Ramamoorthy and Nome.[4]

### History

The manuscripts are found in various ancient literature. However, to date there has been no critical study of these manuscripts.[5]

### Published editions

The Kannada translation of the book was published in 30 volumes in 1950.[5]

### References

Ramamoorthy & Nome (1995).

SAT (n.d.).

Aiyer (1984).

Ramamoorthy & Nome (2000).

Pande (1994), p. 10.

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"Sri Sadisvara Mandiram". [satramana.org](http://satramana.org). Society of Abidance in Truth. n.d.

Aiyer, N.R. Krishnamoorthi (1984). *The Essence of Ribhu Gita: Selection and English Translation*. Sri Ramanasramam. ISBN 81-88018-81-3. Archived from the original on 2014-12-01.

Pande, Govind Chandra (1994). *Life and thought of Śaṅkarācārya*. Motilal Banarsidass. ISBN 978-81-208-1104-1. Retrieved 5 April 2010.

Ramamoorthy, H.; Nome (1995). *The Ribhu Gita: First English Translation from the Original Indian Epic Sivarahasya*. Society of Abidance in Truth. ISBN 0970366744. Retrieved 4 August 2013.

Ramamoorthy, H.; Nome (2000). *The Song of Ribhu: Translated from the Original Tamil Version of the Ribhu Gita*. Society of Abidance in Truth. ISBN 9780970366702.

### External links

Media related to Shivarahasya Purana at Wikimedia Commons  
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Sadhus Men Sadhus are ascetic men in Hindu tradition who ...

Sadhu and Sanyasi traditions involve ascetic life, renouncing worldly ties for spiritual realization through severe discipline, meditation, and detachment, characterized by distinctive appearances (saffron robes, ash), vows (celibacy, non-possession), and practices like wandering (Bahudaka), living in solitude (Kutichaka), or extreme austerities (Naga Sadhus), all focused on achieving moksha (liberation). They are revered but distinct from priests, representing a life beyond family and society, often undertaking intense tapas (austerities) and adhering to strict vows, says this Facebook post.

Core Principles & Vows

Renunciation: Abandoning family, possessions, and societal norms (marriage, career) for spiritual pursuit.

Austerity (Tapas): Extreme self-discipline, meditation, and practices to control senses.

Celibacy (Brahmacharya): Strict abstention from sexual activity.

Non-Possession (Aparigraha): Minimizing or renouncing material wants.

Truthfulness & Non-violence (Ahimsa): Key ethical guidelines.

Appearance & Lifestyle

Clothing/Body: Often wear saffron robes, smear ash (symbolizing death to the world), or go naked (Naga Sadhus).

Possessions: Carry minimal items, like a begging bowl, staff, or water pot, says this Facebook post.

Lifestyle: Can be itinerant (Bahudaka), solitary (Kutichaka), or deeply ascetic (Paramahansa), focusing on self-realization (Brahman).

Paths & Orders

Vedic Progression: Some follow stages of life, while others choose outright renunciation.

Initiation: Involves name changes, dedication to a deity (Shiva, Vishnu), and learning from a guru.

Types: Includes diverse orders like Shaivite (trident bearers) and Vaishnavite, with specific groups like Naga Sadhus performing extreme rituals (e.g., at Kumbh Mela).

Role in Society

Spiritual Guides: Offer teachings, spiritual merit, and a path to liberation.

Ambivalence: While respected, they represent detachment, making them inauspicious at events like weddings, notes this Religion Facts article.

sadhu - Religion Facts

Mar 16, 2015 — If he is a Saiva, he might impersonate Siva and carry a trident (trisula), denoting empire and the irresistible force ...

ReligionFacts

What is the difference between sannyasi, ashram, and sadhu orders ...

Jan 29, 2024 — The four detached ones wear similar saffron robes and kaupinas (loincloths). \* Kutichaka: A life with little contact w...

Facebook

Sadhu - Encyclopedia.com

May 13, 2018 — Marriage and Family. The renunciation of family life and the married state are characteristic of the ascetic life. It ...

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Sannyasa is traditionally conceptualized for men or women in the last years of their life, but young brahmacharis have the choice to skip the householder and ...

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Mar 18, 2015 — They often live near cremation sites and are known to smear cremation ash over their bodies and use bones from human corpses as jewelry, as ...

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Sadhus also perform the auspicious prayers and chants for the festive and religious events at Holy river bank of Ganges in Varanasi.

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Who Are Naga Sadhus? Where Do They Come From? How ...

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Naga sadhus are Shiva worshippers who renounce worldly pleasures and live in the Himalayas. They become Naga sadhus through a long process during the Kumbh Mela.

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Naga Sadhus, India's warrior saints, lead mysterious lives, practicing austerities, and disappearing into seclusion between major festivals.

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Naga sadhus are not for talking, they focus on profoundness of experience and liberation, not impactfulness of action.

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Sadhu and Swami

New World Encyclopedia

<https://www.newworldencyclopedia.org/entry/Sadh...>

Traditionally, becoming a Sannyasi or Sadhu was the fourth and highest stage in when men, usually over sixty, would renounce the world, The rituals of ...

Historical View of the Swami Tradition (Sanyasa)

AhymSin

<https://www.ahymSin.org/historical-view-of-the-swami-...>

Aug 7, 2022 — In the Gita, the meaning of the word “sanyasa” is not taking the vows. It is simply renouncing the desires and fruits of actions.

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ancient Coptic manuscripts (52 texts in 13 books) revealing Gnostic Christianity, a  
significant early Christian movement emphasizing secret spiritual knowledge (gnosis) for

salvation, challenging orthodox views. Key finds include the Gospel of Thomas, Gospel of Mary, and Gospel of Judas, offering alternative perspectives on Jesus's teachings, creation, and divine cosmology, shedding light on early Christian diversity and Gnostic beliefs about a flawed material world.

#### Key Discoveries & Contents

Discovery: A farmer found sealed jars containing papyrus codices near Nag Hammadi, Egypt, in 1945, containing texts likely hidden around 367 CE.

Language: Written in Coptic, these are copies of much older Greek writings.

Content: A library of over 50 texts, including gospels, revelations, treatises, and hymns, offering insights into Gnostic cosmology, secret teachings, and differing views on Jesus.

Significance: Revealed Gnosticism as a complex religious movement, not just a "depraved cult," showing diverse early Christian thought.

#### Famous Texts Included

Gospel of Thomas: A collection of sayings of Jesus not found in the canonical Gospels.

Gospel of Mary (Magdalene): Features Mary Magdalene as a key disciple, receiving special teachings.

Apocryphon of John (Secret Book of John): A foundational Sethian Gnostic text detailing the true creation story and divine origin.

Gospel of Philip: Focuses on sacraments and spiritual meaning.

Gospel of Judas: Presents Judas as fulfilling a divine mission, not a betrayer.

#### Core Gnostic Themes

Gnosis (Knowledge): Emphasis on direct, spiritual knowledge as the path to salvation.

Creator God vs. True God: Distinguishes the flawed, material world's creator (Demiurge) from a higher, transcendent God.

Spiritual vs. Material: Prioritizes the spiritual realm over the material world.

#### Impact

Provided primary sources for understanding Gnosticism, which was previously known mainly through opponents' critiques.

Expanded understanding of early Christianity's diversity, showing various interpretations of Jesus and his message.

#### The Nag Hammadi Codices and Gnostic Christianity

Jan 13, 2024 — Once the Nag Hammadi codices had been translated and published by a team of scholars led by Claremont Graduate Univ...

#### Biblical Archaeology Society

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Aug 26, 2020 — In 1945, while digging around at the base of a cliff near the Egyptian town of Nag Hammadi, a farmer named Muhammed al...

#### Daniel Schnee

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The Gnosis Archive

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The Nag Hammadi Library, a collection of thirteen ancient books (called "codices") containing over fifty texts, was discovered in upper Egypt in 1945.

Alphabetical order

The Gnostic Gospels

Location in the original codices

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List of Gnostic texts

Gospel of Truth

Prayer of the Apostle Paul

Coptic Museum

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Technology standards leader at Logitech

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The Gnostic Gospels: Were They Illegal?

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AI Overview

Esoteric Christianity, outside of organized churches, focuses on the inner, mystical, and symbolic meanings of Christian teachings, seeking direct spiritual experience and inner transformation rather than just dogma or external rituals. It emphasizes understanding hidden wisdom (Gnosis), aligning with the divine self, and exploring universal spiritual principles through practices like meditation, contemplation, and interpreting scripture allegorically, drawing from ancient wisdom traditions and mystics. It's about becoming Christ-like (Christ-consciousness) and achieving spiritual wholeness, distinct from mainstream, exoteric (outward) faith.

Core Concepts

Inner Experience: Prioritizes personal spiritual realization over outward religious performance or adherence to creeds.

Symbolic Interpretation: Sees biblical stories and figures as metaphors for inner states and spiritual processes (e.g., Martha & Mary as active vs. contemplative life).

Transformation (Becoming Christ): Aims to transmute human impulses and achieve union with the divine, embodying Christ's consciousness.

Hidden Wisdom (Gnosis): Seeks secret or deeper meanings in scripture, often linked to ancient Gnostic ideas or Alexandrian theology.

Spiritual Psychology: Explores archetypes (like the Self, Shadow) within the psyche, influenced by thinkers like Jung.

Key Traditions & Influences

Gnosticism: Early Christian movements emphasizing divine knowledge.

Mysticism: Medieval mystics like Meister Eckhart, and texts like The Cloud of Unknowing.

Alchemy & Theosophy: Rosicrucianism and Theosophy introduced esoteric Christian concepts.

Christian Science/New Thought: Focus on divine mind and healing.

Why "Not Church-Based"?

Rejection of Dogma: Finds traditional doctrines too restrictive or symbolic of a 'dead letter' rather than living truth.

Focus on Autonomy: Values personal spiritual authority and direct experience over institutional hierarchy.

Universalism: Seeks universal spiritual laws behind all religions, not exclusive claims.

Modern Interpretation: Aligns with the "Spiritual But Not Religious" (SBNR) trend, seeking depth without traditional structures.

How It's Practiced (Independently)

Meditation & Contemplation: Deep focus on inner states, silence, and divine presence.

Study: Engaging with esoteric texts (Bible, Gnostic Gospels, mystical writings) symbolically.

Inner Work: Self-realization, ego-transcendence, and aligning with the "heart-based consciousness".

Christian mysticism vs esoteric Christianity - Facebook

Jul 26, 2024 — But real spirituality isn't about ticking theological boxes or trying to look holy on the outside. It's ontological—it...

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Esoteric Christianity - Wikipedia

Scholars note that esoteric Christian movements often emphasize alternative interpretations of Christian theology that differ from...

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The Sun Magazine

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Esoteric Christianity would agree that God is not a person in the way you and I are persons. God is Absolute, beyond personhood or nonpersonhood.

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It is Esoteric Christianity as truly as it is Esoteric Buddhism, and belongs equally to all religions, exclusively to none. This has no secrets,

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Esoteric Christianity is simply a deeper and internal practice of Christianity at a personal and self reflective level. It is about study ...

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Esoteric concepts are based on understanding symbolism rooted in the belief systems that predate the Christian era and how that symbolism has ...

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Jun 25, 2004 — It is the Christianity practiced by the Pneumatics (spiritually minded people), as opposed to the Somatics (body oriented, or earthly minded ...

What is Esoteric Christianity?

Stephen Bradford Long

<https://stephenbradfordlong.com> › 2017/01/23 › what-i...

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Authors

Jim McCarty, Don Elkins, Carla Rueckert

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Codex II, one of the most prominent Gnostic writings found in the Nag Hammadi library. Shown here are the end of the Apocryphon of John and the beginning of the Gospel of Thomas.

Part of a series on  
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The Nag Hammadi library (also known as the Chenoboskion Manuscripts and the Gnostic Gospels[a]) is a collection of early Christian and Gnostic texts discovered near the Upper Egyptian town of Nag Hammadi in 1945.

Twelve leather-bound papyrus codices (and a tractate from a thirteenth) buried in a sealed jar were found by an Egyptian farmer named Muhammed al-Samman and others in late 1945.[1] The writings in these codices comprise 52 mostly Gnostic treatises, but also three works belonging to the Corpus Hermeticum, and a partial translation/alteration of Plato's Republic. In his introduction to The Nag Hammadi Library in English, James Robinson suggests that these codices may have belonged to a nearby Pachomian monastery and were buried after Saint Athanasius condemned the use of non-canonical books in his Festal Letter of 367 A.D. The Pachomian hypothesis has been further expanded by Lundhaug & Jenott (2015, 2018)[2][3] and further strengthened by Linjamaa (2024). In his 2024 book, Linjamaa argues that the Nag Hammadi library was used by a small intellectual monastic elite at a Pachomian monastery, and that they were used as a smaller part of a much wider Christian library. [4]

The contents of the codices were written in the Coptic language. The best-known of these works is probably the Gospel of Thomas, of which the Nag Hammadi codices contain the only complete text. After the discovery, scholars recognized that fragments of these sayings attributed to Jesus appeared in manuscripts discovered at Oxyrhynchus in 1898 (P. Oxy. 1), and matching quotations were recognized in other early Christian sources. Most interpreters date the writing of the Gospel of Thomas to the second century, but based on much earlier sources.[5] The buried manuscripts date from the 3rd and 4th centuries.

The Nag Hammadi codices are now housed in the Coptic Museum in Cairo, Egypt.

Discovery

The site of discovery, Nag Hammadi in map of Egypt

Scholars first became aware of the Nag Hammadi library in 1946. Making careful inquiries from 1947–1950, Jean Doresse discovered that a local farmer, who was a teenager at the time, dug up the texts from a graveyard in the desert, located near tombs from the Sixth Dynasty of Egypt. In the 1970s, James Robinson sought out the local farmer in question, identifying him as Muhammad 'Ali al-Samman. Al-Samman told Robinson a complex story involving a mission occasioned by a blood feud, digging to obtain fresh soil for agricultural use and thus finding the manuscripts in a buried jar, hesitating to break the jar due to superstitions about a jinn, and—at the mission's culmination—engaging in cannibalism with the target's heart. His mother claimed that she burned some of the manuscripts as tinder for the family oven; Robinson identified these with Codex XII. Robinson gave multiple accounts of this interview, with the number of people present at the discovery ranging from two to eight.[6] Jean Doresse's account contains none of these elements.

Later scholarship has drawn attention to al-Samman's mention of a corpse and a "bed of charcoal" at the site of the putative "fresh soil" excavation—aspects of the story that were vehemently denied by al-Samman's brother. It has been suggested that the library was initially a simple grave robbing, and the more fanciful aspects of the story were concocted as a cover story. Burials of books were common in Egypt, in the early centuries AD; but if the library was a funerary deposit, it conflicts with Robinson's belief that the manuscripts were purposely hidden out of fear of persecution. Instead, Lewis & Blount (2014) have proposed that the Nag Hammadi codices had been privately commissioned by a wealthy non-monastic individual, and that the books had been buried with him as funerary prestige items.[7] The "blood feud" story, however, has been generally accepted.[8]

Slowly, most of the tracts came into the hands of Phokion J. Tanos,[9] a Cypriot antiques dealer in Cairo, and they were thereafter being retained by the Department of Antiquities, for fear that they would be sold out of the country. After the revolution in 1952, the texts were handed to the Coptic Museum in Cairo, and declared national property.[10] Pahor Labib, the director of the Coptic Museum at that time, was keen to keep the manuscripts in their country of origin.

Meanwhile, a single codex had been sold in Cairo to a Belgian antiques dealer. After an attempt was made to sell the codex in both New York City and Paris, it was acquired by the Carl Gustav Jung Institute in Zurich in 1951, through the mediation of Gilles Quispel. It was intended as a birthday present for Jung; for this reason, this codex is typically known as the Jung Codex, being Codex I in the collection.[10] Jung's death in 1961 resulted in a quarrel over the ownership of the Jung Codex; the pages were not given to the Coptic Museum in Cairo until 1975, after a first edition of the text had been published. The papyri were finally brought together in Cairo: of the 1945 find, eleven complete books and fragments of two others, 'amounting to well over 1000 written pages', are preserved there.[11]

## Translation

The first edition of a text found at Nag Hammadi was from the Jung Codex, a partial translation of which appeared in Cairo in 1956, and a single extensive facsimile edition was planned. Due to the difficult political circumstances in Egypt, individual tracts followed from the Cairo and Zurich collections only slowly.

This state of affairs did not change until 1966, with the holding of the Messina Congress in Italy. At this conference, intended to allow scholars to arrive at a group consensus concerning the definition of Gnosticism, James M. Robinson assembled a group of editors and translators whose express task was to publish a bilingual edition of the Nag Hammadi codices in English, in collaboration with the Institute for Antiquity and Christianity at the Claremont Graduate University in Claremont, California, where Robinson was a faculty member.

Robinson was elected secretary of the International Committee for the Nag Hammadi Codices, which had been formed in 1970 by UNESCO and the Egyptian Ministry of Culture; it was in this capacity that he oversaw the project. A facsimile edition in twelve volumes was published between 1972 and 1977, with subsequent additions in 1979 and 1984 from the publisher Brill Publishers in Leiden, entitled, *The Facsimile Edition of the Nag Hammadi Codices*. This made all the texts available for all interested parties to study in some form.

At the same time, in the German Democratic Republic, a group of scholars—including Alexander Böhlig, Martin Krause and New Testament scholars Gesine Schenke, Hans-Martin Schenke and Hans-Gebhard Bethge—were preparing the first German language translation of the find. The last three scholars prepared a complete scholarly translation under the auspices of the Berlin Humboldt University, which was published in 2001.

The James M. Robinson translation was first published in 1977, with the name *The Nag Hammadi Library in English*, in collaboration between E.J. Brill and Harper & Row. The single-volume publication, according to Robinson, 'marked the end of one stage of Nag Hammadi scholarship and the beginning of another' (from the Preface to the third revised edition). Paperback editions followed in 1981 and 1984, from E.J. Brill and Harper, respectively. A completely revised third edition was published in 1988. This marks the final stage in the gradual dispersal of gnostic texts into the wider public arena—the full complement of codices was finally available in unadulterated form to people around the world, in a variety of languages. A cross-reference apparatus for Robinson's translation and the Biblical canon also exists.[12]

Another English edition was published in 1987, by Yale scholar Bentley Layton, called *The Gnostic Scriptures: A New Translation with Annotations* (Garden City: Doubleday & Co., 1987). The volume included new translations from the Nag Hammadi Library, together with extracts from the heresiological writers, and other gnostic material. It remains, along with *The Nag Hammadi Library in English*, one of the more accessible

volumes of translations of the Nag Hammadi find. It includes extensive historical introductions to individual gnostic groups, notes on translation, annotations to the text, and the organization of tracts into clearly defined movements.

Not all scholars agree that the entire library should be considered Gnostic. Paterson Brown has argued that the three Nag Hammadi Gospels of Thomas, Philip and Truth cannot be so labeled, since each, in his opinion, may explicitly affirm the basic reality and sanctity of incarnate life, which Gnosticism by definition considers illusory.[13]

#### List of codices and tractates

The following table contains a list of codices and tractates in the Nag Hammadi library as given by Aleksandr Leonovich Khosroev (ru).[14][15] Abbreviations are from The Coptic Gnostic Library.

| Order of tractate        | Codex number | Tractate number in the codex                       | Tractate title                                                                                                                                                                                                                                      |
|--------------------------|--------------|----------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Pages Abbreviation Notes |              |                                                    |                                                                                                                                                                                                                                                     |
| 01                       | NHC-I        |                                                    |                                                                                                                                                                                                                                                     |
| (Jung Codex)[16]         | 1            | The Prayer of the Apostle Paul (2)                 | Pr. Paul Text rewritten on flyleaf, two lines lost, title in Greek.                                                                                                                                                                                 |
| 02                       | 2            | The Apocryphon of James (The Secret Book of James) | 1–16 Ap. Jas. The title is based on the content of the text, which takes the form of a letter from James to an addressee whose name is not mentioned. Most of the text is a dialogue between Jesus and the unnamed apostles.                        |
| 03                       | 3            | The Gospel of Truth 16–43 Gos. Truth               | The title is based on the opening words of the text.                                                                                                                                                                                                |
| 04                       | 4            | The Treatise on the Resurrection 43–50 Treat Res.  | A treatise in the form of a letter from a teacher to a disciple, a certain Reginus, in which the addressee discusses the resurrection of Jesus Christ.                                                                                              |
| 05                       | 5            | The Tripartite Tractate 51–140 Tri. Trac.          | Title given by scholars. The treatise discusses Valentinian views on creation and cosmology.                                                                                                                                                        |
| 06                       | NHC-II       | 1                                                  | The Apocryphon of John 1–32 Ap. John A lengthy version, the first of the three versions in the Nag Hammadi library. The text is a revelation in the form of questions and answers given by Jesus to the apostle John.                               |
| 07                       | 2            | The Gospel of Thomas 32–51 Gos. Thom.              | A collection of sayings of Jesus given secretly to the apostles. Some of the sayings are known from the canonical Gospels. Greek papyri of similar content known since the beginning of the twentieth century are P.Oxy. 1, P.Oxy. 654, P.Oxy. 655. |
| 08                       | 3            | The Gospel of Philip 51–86 Gos. Phil.              | A Valentinian text that is a collection of discourses.                                                                                                                                                                                              |
| 09                       | 4            | The Hypostasis of the Archons 86–97 Hyp. Arch.     | The title is at the end of the text. The text deals with cosmology and the creation of man.                                                                                                                                                         |
| 10                       | 5            | On the Origin of the World 97–127 Orig. World      | Title given by scholars. The treatise discusses the creation of the universe and cosmology.                                                                                                                                                         |
| 11                       | 6            | The Exegesis on the Soul 127–137 Exeg. Soul        | A treatise on the fall and resurrection of the human soul that is an exegesis of Genesis 1–6. The only                                                                                                                                              |

scriptural commentary in the library.

12 7 The Book of Thomas the Contender 138–145 Thom. Cont. The title is given at the end of the text. The dialogue of the risen Jesus with Judas Thomas concerning knowledge and truth, as recorded by the apostle Matthew.

13 NHC-III 1 The Apocryphon of John 1–40 Ap. John Short version.

14 2 Holy Book of the Great Invisible Spirit (The Gospel of the Egyptians) 40–69 Gos. Eg. One of two editions of the text with the title at the end. The work begins with the phrase, "The Holy Book of the Great, Invisible Spirit." Its authorship is attributed to the biblical Seth. Contains cosmogonic and soteriological themes.

15 3 Eugnostos the Blessed 70–90 Eugnostos One of two versions of the text. A treatise on the Gnostic world order in the form of a message from a teacher (Eugnostus) to his disciples.

16 4 The Sophia of Jesus Christ 90–119 Soph. Jes. Chr. Revelation in the form of questions and answers given by the risen Christ to his apostles. The text is dependent on Eugnostos the Blessed. Jesus' speeches in this text are verbatim with Eugnostus' teachings given in Eugnostos the Blessed.[17]

17 5 The Dialogue of the Saviour 120–149 Dial. Sav. The title is given at the beginning and end of the treatise. The content consists of Jesus' conversations with the apostles and Mary Magdalene about the way to salvation.

18 NHC-IV 1 The Apocryphon of John 1–49 Ap. John The second lengthy version.

19 2 Holy Book of the Great Invisible Spirit (The Gospel of the Egyptians) 50–81 Gos. Eg. Second copy of the text.

20 NHC-V 1 Eugnostos the Blessed 1–17 Eugnostos Second copy of the text.

21 2 The Apocalypse of Paul 17–24 Apoc. Paul. The text is derived from 2 Corinthians 12:2–4 and recounts the apostle Paul's journey and visions from the fourth heaven to the tenth heaven.

22 3 The First Apocalypse of James 24–44 1 Ap. Jas. Dialogue about the secret teaching that Jesus taught to James, first before his death, then after his resurrection.

23 4 The Second Apocalypse of James 44–63 2 Ap. Jas. The original title is the same as the previous text. The composition is complex: it includes James' speeches to the Jews about the greatness of Jesus and concludes with James' martyrdom.

24 5 The Apocalypse of Adam 63–85 Apoc. Adam The revelation of the Flood and the ultimate fate of the world, which Adam received from God and passed on to his son Seth.[18]

25 NHC-VI 1 The Acts of Peter and the Twelve Apostles 1–12 Acts Pet. 12 Apost. The only "Acts" text in the library. An account (on behalf of the Apostle Peter) of the journey of the apostles to a certain city and their encounter with Jesus, who took the form of a jewel merchant named Lithargoel.

26 2 The Thunder, Perfect Mind 13–21 Thund. A poetic treatise. It is a self-proclamation of a female (?) deity on the non-dual, all-encompassing nature of the

divine.[19]

27 3 Authoritative Teaching (Authoritative Discourse) 23–35 Auth. Teach. A philosophical text about the fate of the soul, its origins, fall, and victory over the material world via salvation.[20]

28 4 The Concept of Our Great Power 36–48 Great Pow. Title at the end of the treatise. Revelation of the three aeons: the material aeon, which ended with the Flood; the spiritual aeon, when the Savior appeared; and the future aeon.

29 5 Fragments: 588a-589b of Plato's Republic. 48–51 Plato Rep. A text about injustice[21]

30 6 The Discourse on the Eighth and Ninth 52–63 Dis. 8–9 Title given by scholars. Hermetic dialogue in which the teacher ("father") Hermes Trismegistus leads his disciple ("son") through the "eight" and "nine" realms of heaven.[17]

31 7 The Prayer of Thanksgiving 63–65 Pr. Thanks. A hermetic prayer, previously known from both the Greek and Latin versions.

32 8 Asclepius 65–78 Asklepius Dialogue of Hermes Trismegistus with his disciple Asclepius. Chapters 21–29 of the lost Greek hermetic treatise known from the full Latin translation.

33 NHC-VII 1 The Paraphrase of Shem 1–49 Paraph. Shem The title is at the beginning of the treatise. A revelation on cosmological and soteriological themes received by Shem (possibly not biblical) from Derdekeas, the son of infinite light, during the mystical separation of his mind from his body.

34 2 The Second Treatise of the Great Seth 49–70 Treat. Seth The title is at the end of the tractate. The revelation of Jesus Christ (probably identified with Seth), where he narrates his descent to earth, his death on the cross, and his return to the Pleroma.

35 3 Gnostic Apocalypse of Peter 70–84 Apoc. Petr. An account of the visions of the apostle Peter, the meaning of which Jesus revealed to him on condition that it remain secret.

36 4 The Teachings of Silvanus 84–118 Teach. Silv The only text in the library of unquestionably Christian origin.[22] An ethical treatise in the form of the teachings of a father to his spiritual son.

37 5 The Three Steles of Seth 118–127 Steles Seth The title is at the end of the treatise. A composition in the form of hymns to higher divine entities. It begins with the title "The Revelation of Dositheos", but this name is not mentioned anywhere else in the text.

38 NHC-VIII 1 Zostrianos 1–132 Zost. The title at the end of the treatise. Revelations received by Zostrianos from the "angel of knowledge" and an account of the hero's subsequent ascent through the heavenly realms. This is the longest text in the library, and is also in very poor condition.

39 2 The Letter of Peter to Philip 132–140 Ep. Pet. Phil. Title at the beginning of the treatise. Of the nine pages of the treatise, the epistle proper occupies only one page. The rest is part of the apocryphal acts of the apostles speaking to the risen Jesus.

40 NHC-IX 1 Melchizedek 1–27 Melch. Title at the beginning of the treatise. A series of revelations about Jesus Christ received by the biblical Melchizedek

from an angel.

41 2 The Thought of Norea 27–29 Norea One of the shortest texts in the library, with only 52 lines. The title is based on the phrase at the end of the text. A prayer, probably by a woman.[23]

42 3 The Testimony of Truth 29–74 Testim. Truth. Title given by scholars. An address to the chosen (elect) on the essence of truth, along with a polemic against ecclesiastical Christianity.[19]

43 NHC-X 1 Marsanes 1–68 Marsanes The title is at the end of the text. The vision of the prophet Marsanus during his ecstatic ascent to heaven and of the essence of God.

44 NHC-XI 1 The Interpretation of Knowledge 1–21 Interp. Know. The title is at the end of the text. An ethical sermon by a Christian Gnostic author.

45 2 A Valentinian Exposition 22–40 Val. Exp. Five fragments of a Valentinian philosophical treatise on anointing (On Anointing), baptism (On Bap. A & B), and the Eucharist (On Euch. A & B).

46 3 Allogenes 40–44 Allogenes The title is at the end of the tractate. The account of Allogenes of a revelation received from the angel Jude, and of an ascent to heavenly beings.

47 4 Hypsiphron 45–69 Hypsiph. The title is at the beginning of the text, which is very poorly preserved. The book of visions of Hypsiphron.

48 NHC-XII 1 The Sentences of Sextus 15–16, 27–34 Sext A collection of wisdom sayings.

49 2 The Gospel of Truth Gos. Truth The second copy, of which only a few fragments remain in a different dialect of Coptic.

50 3 fragments Frm. A total of 10 pages with fragments of 15 texts have survived from the volume, of which only 2 texts have been identified.

51 NHC-XIII 1 Trimorphic Protennoia 35–50 Trim. Prot. "Three Forms of First Thought". A treatise similar to the Apocryphon of John in many ways.

52 2 On the Origin of the World Orig. World Ten opening lines in the text.

fragments The volume contains a total of 16 heavily fragmented pages. Two texts are identified.

The so-called "Codex XIII" is not a codex, but rather the text of Trimorphic Protennoia, written on "eight leaves removed from a thirteenth book in late antiquity and tucked inside the front cover of the sixth." (Robinson, NHLE, p. 10) Only a few lines from the beginning of Origin of the World are discernible on the bottom of the eighth leaf.

## Dating

Although the manuscripts discovered at Nag Hammadi are generally dated to the 4th century, there is some debate regarding the original composition of the texts.[24]

The Gospel of Thomas is held by most to be the earliest of the "gnostic" gospels composed. Scholars generally date the text to the early to mid-2nd century.[25] The Gospel of Thomas, it is often claimed, has some gnostic elements but lacks the full gnostic cosmology. However, even the description of these elements as "gnostic" is



based mainly upon the presupposition that the text as a whole is a "gnostic" gospel, and this idea itself is based upon little other than the fact that it was found along with gnostic texts at Nag Hammadi.[26] Some scholars including Nicholas Perrin argue that Thomas is dependent on the Diatessaron, which was composed shortly after 172 by Tatian in Syria.[27] Others contend for an earlier date, with a minority claiming a date of perhaps 50 AD, citing a relationship to the hypothetical Q document among other reasons.[28] The Gospel of Truth[29] and the teachings of the Pistis Sophia can be approximately dated to the early 2nd century as they were part of the original Valentinian school, though the gospel itself is 3rd century.

Documents with a Sethian influence (like the Gospel of Judas, or outright Sethian like Coptic Gospel of the Egyptians) can be dated substantially later than 40 and substantially earlier than 250; most scholars giving them a 2nd-century date.[30] More conservative scholars using the traditional dating method would argue in these cases for the early 3rd century.[citation needed]

Some gnostic gospels (for example Trimorphic Protennoia) make use of fully developed Neoplatonism and thus need to be dated after Plotinus in the 3rd century.[31][32]

See also

Apocalyptic literature

Acts of the Apostles (genre)

Agrapha

Biblical archaeology

Dead Sea Scrolls

Development of the New Testament canon

Dishna Papers

Gospel of Mary

List of Gnostic texts

List of Gospels

List of Mandaic manuscripts

List of New Testament papyri

Medinet Madi library

Nag Hammadi and Manichaean Studies

New Testament apocrypha

Pseudepigrapha

Textual criticism

Notes

The texts are referred to as the "Gnostic Gospels" after Elaine Pagels' 1979 book of the same name, but the term also has a more generic meaning.

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External links

Wikiquote has quotations related to Nag Hammadi library.

The Nag Hammadi Library – Complete texts, at the Gnostic Society Library

The Gospel of Thomas – Multiple translations and resources, at the Gnostic Society Library

How the manuscripts were found – A complete list of the manuscripts, at the Tertullian Project

Jung Codex, at the Tertullian Project

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Nag Hammadi library

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Esoteric Christianity (Not Church-Based)

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AI Overview

Esoteric Christianity, outside of organized churches, focuses on the inner, mystical, and symbolic meanings of Christian teachings, seeking direct spiritual experience and inner transformation rather than just dogma or external rituals. It emphasizes understanding hidden wisdom (Gnosis), aligning with the divine self, and exploring universal spiritual principles through practices like meditation, contemplation, and interpreting scripture allegorically, drawing from ancient wisdom traditions and mystics. It's about becoming

Christ-like (Christ-consciousness) and achieving spiritual wholeness, distinct from mainstream, exoteric (outward) faith.

#### Core Concepts

Inner Experience: Prioritizes personal spiritual realization over outward religious performance or adherence to creeds.

Symbolic Interpretation: Sees biblical stories and figures as metaphors for inner states and spiritual processes (e.g., Martha & Mary as active vs. contemplative life).

Transformation (Becoming Christ): Aims to transmute human impulses and achieve union with the divine, embodying Christ's consciousness.

Hidden Wisdom (Gnosis): Seeks secret or deeper meanings in scripture, often linked to ancient Gnostic ideas or Alexandrian theology.

Spiritual Psychology: Explores archetypes (like the Self, Shadow) within the psyche, influenced by thinkers like Jung.

#### Key Traditions & Influences

Gnosticism: Early Christian movements emphasizing divine knowledge.

Mysticism: Medieval mystics like Meister Eckhart, and texts like The Cloud of Unknowing.

Alchemy & Theosophy: Rosicrucianism and Theosophy introduced esoteric Christian concepts.

Christian Science/New Thought: Focus on divine mind and healing.

#### Why "Not Church-Based"?

Rejection of Dogma: Finds traditional doctrines too restrictive or symbolic of a 'dead letter' rather than living truth.

Focus on Autonomy: Values personal spiritual authority and direct experience over institutional hierarchy.

Universalism: Seeks universal spiritual laws behind all religions, not exclusive claims.

Modern Interpretation: Aligns with the "Spiritual But Not Religious" (SBNR) trend, seeking depth without traditional structures.

#### How It's Practiced (Independently)

Meditation & Contemplation: Deep focus on inner states, silence, and divine presence.

Study: Engaging with esoteric texts (Bible, Gnostic Gospels, mystical writings) symbolically.

Inner Work: Self-realization, ego-transcendence, and aligning with the "heart-based consciousness".

#### Christian mysticism vs esoteric Christianity - Facebook

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It is Esoteric Christianity as truly as it is Esoteric Buddhism, and belongs equally to all religions, exclusively to none. This has no secrets,

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The Temple of the Rose Cross, Teophilus Schweighardt Constantiens, 1618

Part of a series on  
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Esoteric Christianity is a mystical approach to Christianity which features "secret traditions" that require an initiation to learn or understand.[1][2] The term esoteric was coined in the 17th century and derives from the Greek ἐσωτερικός (esōterikos, "inner"). It stands in contrast to exoteric (ἐξωτερικός, exōterikos, "outer" or "public"), a distinction already noted by Aristotle, who referred to ἐξωτερικοὶ λόγοι ("exoteric discourses") intended for a general audience.[3][4] Esoteric teachings were often transmitted orally to a small inner circle of initiates rather than through written publications, a pattern consistent with other religious "secret traditions".

Scholars note that esoteric Christian movements often emphasize alternative interpretations of Christian theology that differ from established orthodoxy. These currents frequently draw upon the canonical gospels, apocalyptic writings, and certain New Testament apocrypha as sources of hidden or symbolic meaning.[5] Some traditions also refer to the *disciplina arcani*, a concept describing secret teachings or liturgical practices transmitted in the early Church, although mainstream scholarship generally understands it as limited to liturgical secrecy rather than esoteric doctrine.[6][7]

Scholars debate the relationship between esoteric Christianity and Gnosticism. While some see Gnostic movements as among the earliest expressions of esoteric Christian thought, others argue that esoteric Christianity developed distinctively through Alexandrian theology, medieval mysticism, and later currents such as Rosicrucianism

and Theosophy.[8][9][7]

There are also esoteric Christian Societies such as the Societas Rosicruciana in Anglia.  
[10]

## History

### Ancient roots

Some modern scholars believe that in the early stages of proto-orthodox Christianity, a nucleus of oral teachings were inherited from Palestinian and Hellenistic Judaism.[7] In the 4th century, it was believed to form the basis of a secret oral tradition which came to be called *disciplina arcani*.<sup>[7]</sup> Mainstream theologians, however, believe that it contained only liturgical details and certain other traditions which remain a part of some branches of mainstream Christianity.<sup>[7][11][12]</sup> Important influences on esoteric Christianity are the Christian theologians Clement of Alexandria and Origen, the leading figures of the Catechetical School of Alexandria.<sup>[13]</sup><sup>[need quotation to verify]</sup>

### Present-day denominations

A denomination of esoteric Christianity is The Christian Community.<sup>[14]</sup> It focuses on the experiential aspect of sacraments, with the Eucharist serving as "the Rite of the Consecration of Man".<sup>[14]</sup>

Scholar Jan Shipps describes the Church of Jesus Christ of Latter-day Saints as having esoteric elements.<sup>[15]</sup>

## Concepts

### Reincarnation

Further information: Reincarnation § Christianity

Influenced by the Platonic doctrine of metempsychosis, reincarnation of the soul was accepted by most Gnostic Christian sects such as Valentinianism and the Basilidians, but denied by the proto-orthodox one.<sup>[citation needed]</sup> While hypothetically considering a complex multiple-world transmigration scheme in *De Principiis*, Origen denies reincarnation in his work *Against Celsus* and elsewhere.<sup>[16][17]</sup>

Despite this apparent contradiction, most modern esoteric Christian movements refer to Origen's writings (along with other Church Fathers and biblical passages) to validate these ideas as part of the esoteric Christian tradition outside of the Gnostic schools, who were later considered heretical in the 3rd century.<sup>[18]</sup>

See also

Anthroposophy

The Aquarian Gospel of Jesus the Christ

Heinrich Cornelius Agrippa

Jakob Böhme

Vade Retro Satana

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AI Overview

Alternatives to HoloSync for brainwave entrainment include other audio-based systems like Lifeflow, iAwake, Zen12, Equisync (with binaural/monaural beats, isochronic tones), neurofeedback devices such as Muse and Sensei, and simpler apps using just binaural beats or isochronic tones for focused meditation, all aiming to guide your brain to

specific states (Alpha, Theta, etc.) for relaxation, focus, or deep awareness, often using similar underlying principles but with different delivery methods and price points.

Audio-Based Systems (Similar to HoloSync)

Lifeflow: Uses monaural beats, gentler than HoloSync but potentially less deep; offers a free meditation course.

Equisync/BranEV: High-quality programs with multiple levels and tracks, great for deep meditation.

iAwake (Profound Meditation Series): Similar to HoloSync, aimed at deep states.

Zen12: Offers shorter sessions (12 mins), but be wary of affiliate marketing in reviews.

Omharmonics: Another option in the same category, though potentially pricey.

Neurofeedback Devices (Hardware-Based)

Muse (S/2): Headband measures brainwaves, heart rate, and breathing, guiding you with feedback for mindfulness.

Sensei: More advanced neurofeedback headset using light (photobiomodulation) and sound for deep focus training.

BrainLink Pro: Headband with an ear clip for brainwave measurement and color feedback.

Core Techniques & Apps (DIY/General)

Binaural Beats: Two slightly different frequencies played in each ear, creating a third perceived beat; common in many apps.

Isochronic Tones: Rapid pulses of a single tone, often considered more effective than binaural beats for entrainment.

Monaural Beats: Similar to binaural but can be heard with speakers, gentler effect.

Apps (e.g., Insight Timer): Offer free/paid tracks using these core techniques.

Key Considerations

Goal: Are you aiming for deep meditation (Theta/Delta), focus (Beta), or relaxation (Alpha)?

Method: Do you prefer auditory stimulation (beats/tones), visual stimulation (light devices), or biofeedback (Muse)?

Cost & Support: Some are expensive subscriptions (HoloSync), others are one-time purchases or free apps.

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What's the best brainwave entrainment program? Have you used Holosync, Morry Method, Binaural Beats, etc.?

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AYP Forum

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Oct 11, 2007 — I have tried lots of binaural brain wave technologies, like brain wave generator, neuroprogrammer, and insight by immrama. I found Dr.

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Shelley Klammer

<https://www.shelleyklammer.com> › post › brain-wave-e...

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Amazon.com

<https://www.amazon.com> › Ra-Contact-Teaching-Law-...

Book details ; Book 1 of 2. The Ra Contact: Teaching the Law of One ; Print length. 540 pages ; Language. English ; Publication date. February 28, 2018 ; Dimensions.

People also ask

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Ra Material, Law One (52 results)

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The Ra Material: An Ancient Astronaut Speaks (Law of One). Rueckert, Carla, McCarty, James Allen, Elkins, Don. ISBN 13: 9780898652604. Language: English.

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The Ra Teaching the Law of One Volume 1 contains Ra contact sessions 1–56. this book can be read for free in PDF form on L/L's archive website.

4.5(425)

Don Elkins - Ra Material - The Law of One | Avalon Library

avalonlibrary.net

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PDF

This book is an exact transcript from tape recordings of twenty- six sessions of an experiment designed to communicate with an extraterrestrial being.

953 pages

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10 answers

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Top answer:

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This study guide gives a wonderful overview of the main philosophies, concepts and practices of the Law of One, predominantly through excerpts.

David Wilcock, Carla Rueckert Ra, Law of One Study Guide

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David Wilcock: Unveiling the Law of One by Lloyd Leon

Barnes & Noble

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Top answer:

Channeling is just tapping into the collective consciousness. EGo wants to give it an identity.

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5

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Context: The world is called Born of Blood, its grimdark medieval fantasy where humans try their hardest cleanse the land of Nox corruption for their three gods with miracles of flames and healing and using alchemy enhanced knights. Beasts of Nox being demon like beings who can warp flesh and corrupt the human mind and souls with a rare use of giant serpents. While the Beasts of Nox are very powerfull they enjoy torturing the humans and if any chance of humans defeating Nox appears, the Beasts will very quickly remind them that there is no hope. Only battle, bloodrusted metal and endless piles of corpses.

1

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What are the differences between similar branches of your system? Such as the flames :3

2

Fatyakcz

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Im sorry could you rephrase that please? I got no idea what you mean

1

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Related Answers

Unique cultures for a fantasy world

Creating unique and believable cultures for a fantasy world can be a daunting task, but by drawing inspiration from real-world cultures and adding your own imaginative twists, you can build rich and diverse societies. Here are some insights and tips from Redditors on how to approach this:

Mixing Real-World Inspirations

Avoid Direct Copy-Pasting: While taking inspiration is good, direct copying can feel lazy and unoriginal. "Honestly I prefer it often over the more common alternative of generic Western European Kingdom."

Combine Elements: Mixing different real-world cultures can create a unique blend. "I like to take a core culture (let's say German) add a neighbouring culture (let's say Czech Republic)."

Use Real-World Analogues as a Starting Point: This can help in visualizing and building the culture. "Dwarves: ancient Dacian and Thracian tribes and kingdoms."

Exploring Underrepresented Cultures

Look Beyond Western Europe: Many Redditors suggest exploring cultures from other parts of the world. "We distinctly lack Persian people to the east, Persians are cool."

Consider Indigenous and African Cultures: These are often overlooked in fantasy settings. "I would like to see some Fantasy set in a indigenous native American culture."

Dive into Historical Civilizations: Ancient civilizations like Sumeria, Assyria, and Babylonia offer rich material. "Sumeria, Assyria and Babylonia without biblical cr\*p."

Developing Unique Cultural Traits

Flip Stereotypes: Take common tropes and turn them on their head. "So, using your example above, Asians would have big wide eyes, like a doe."

**Create Unique Rituals and Traditions:** These can add depth and authenticity. "Mixing original stuff with classic stuff. Like, maybe include fairies, but make them totally different from expected."

**Focus on Small Details:** These can make a big difference in creating a believable culture. "When writing culture you would be surprised how much the small details make a difference."

### Respectful Representation

**Do Your Research:** Thoroughly understand the real-world cultures you are drawing from. "Do your best to be considerate, follow the other advice given by other commenters and be prepared to still be called a nazi bigot for not creating an exact replica of an obscure offshoot."

**Avoid Harmful Stereotypes:** Be mindful of the stereotypes associated with the cultures you are inspired by. "I think it's perfectly fine as long as it doesn't encourage any harmful stereotypes and is faithful to the real country's history and culture."

**Seek Feedback:** Consider getting input from people who are part of the culture you are representing. "A beta reader or paid sensitivity reader from that culture is the absolute lowest bar."

### Practical Tips

**Use Real Languages as Inspiration:** This can help in creating believable names and terms. "Creating entire languages is hard so why not just use a real language that's related to your fictional culture?"

**Build on Geography and History:** Consider how the environment and historical events would shape the culture. "If my setting has a big temperate to arid steppe it shouldn't be surprising that my people have similarity to the horse riding civilizations that occupied that same biome in our world."

**Create Unique Mythical Creatures:** Mixing mythical creatures from different cultures can add a unique flavor. "I recommend mixing original stuff with classic stuff. Like, maybe include fairies, but make them totally different from expected."

**Subreddits for Further Inspiration**  
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By following these guidelines and drawing on the rich tapestry of human history and

culture, you can create fantasy worlds that are both unique and deeply engaging.

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#### FedScoop

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United States District Court for the District of Columbia, "US v Viktor Borisovich Netyksho, et al - Indictment", July 13 2018. Unclassified.

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"Guccifer 2.0" is a persona which claimed to be the hacker(s) who gained unauthorized access to the Democratic National Committee (DNC) computer network and then leaked its documents to the media,[1][2] the website WikiLeaks,[3][4][5][6][7] and a conference event.[8] Some of the documents "Guccifer 2.0" released to the media appear to be forgeries cobbled together from public information and previous hacks, which had been

mixed with disinformation.[9][10][11] According to indictments in February 2018, the persona is operated by Russian military intelligence agency GRU.[12] On July 13, 2018, Special Counsel Robert Mueller indicted 12 GRU agents for allegedly perpetrating the cyberattacks.[12]

The U.S. Intelligence Community assessed with high confidence that some of the genuine leaks from "Guccifer 2.0" were part of a series of cyberattacks on the DNC committed by two Russian military intelligence groups,[13][14][15][16] and that "Guccifer 2.0" is actually a persona created by Russian intelligence services to cover for their interference in the 2016 U.S. presidential election.[17][18] This conclusion is based on intelligence analysis and analyses conducted by multiple private sector cybersecurity individuals and firms, including CrowdStrike,[19][20] Fidelis Cybersecurity,[20][21] FireEye's Mandiant,[20] SecureWorks,[22] ThreatConnect,[23] Trend Micro,[24] and the security editor for Ars Technica.[25] The Russian government denies involvement in the theft,[26] and "Guccifer 2.0" denied links to Russia.[27][28]

In March 2018, Special Counsel Robert Mueller took over investigation of Guccifer 2.0 from the FBI while it was reported that forensic determination had found the Guccifer 2.0 persona to be a "particular military intelligence directorate (GRU) officer working out of the agency's headquarters on Grizodubovoy Street in Moscow".[29]

### Identity

On June 21, 2016, in an interview with Vice, "Guccifer 2.0" said he is Romanian,[27][30] which is the nationality of Marcel Lazar Lehel, the Romanian hacker who originally used the "Guccifer" pseudonym. On June 30, 2016, and January 12, 2017, "Guccifer 2.0" stated that he is not Russian.[31][32][33] However, despite stating that he was unable to read or understand Russian, metadata of emails sent from Guccifer 2.0 to The Hill showed that a predominantly-Russian-language VPN was used.[34] When pressed to use the Romanian language in an interview with Motherboard via online chat, "he used such clunky grammar and terminology that experts believed he was using an online translator." [34] Linguistic analysis by Shlomo Engelson Argamon showed that Guccifer 2.0 is most likely "a Russian pretending to be a Romanian".[35][36] When asked about Guccifer 2.0's leaks, WikiLeaks founder Julian Assange said "These look very much like they're from the Russians. But in some ways, they look very amateur, and almost look too much like the Russians." [37][38]

Some cybersecurity experts have concluded that "Guccifer 2.0" is likely a creation of the Russian state-sponsored hacking groups thought to have executed the attack,[18][19][20][21][22][23][25] invented to cover up Russian responsibility.[17][18] The cybersecurity firm CrowdStrike, which was hired by the DNC to analyze the data breach, [39] "posits that Guccifer 2.0 could be 'part of a Russian Intelligence disinformation campaign'", i.e. a creation to deflect blame for the theft.[17] Russia has made use of the invention of "a lone hacker or an hacktivist to deflect blame" in the past, deploying this strategy in previous cyberattacks on the German government and the French network TV5Monde.[18] Thomas Rid of King's College London, a cybersecurity expert, says it is

"'more likely than not' that the whole operation, including the Guccifer 2.0 part, was orchestrated by Russian spies." [18] The hackers responsible for the DNC email leak (a group called Fancy Bear by CrowdStrike) seem to have not been working on the DNC's servers on April 15 which in Russia is a holiday in honor of the Russian military's electronic warfare services. [40]

On July 18, 2016, Russian government spokesman Dmitry Peskov denied Russian government involvement in the DNC theft. [41]

In an October 2016 joint statement, the United States Department of Homeland Security and the Office of the Director of National Intelligence stated:

The U.S. Intelligence Community (USIC) is confident that the Russian Government directed the recent compromises of e-mails from U.S. persons and institutions, including from U.S. political organizations. The recent disclosures of alleged hacked e-mails on sites like DCLeaks.com and WikiLeaks and by the Guccifer 2.0 online persona are consistent with the methods and motivations of Russian-directed efforts. These thefts and disclosures are intended to interfere with the U.S. election process. Such activity is not new to Moscow—the Russians have used similar tactics and techniques across Europe and Eurasia, for example, to influence public opinion there. We believe, based on the scope and sensitivity of these efforts, that only Russia's senior-most officials could have authorized these activities. [42]

In March 2018, The Daily Beast, citing U.S. government sources, reported that Guccifer 2.0 is in fact a Russian GRU officer, explaining that Guccifer once forgot to use a VPN, leaving IP logs on "an American social media company" server. The IP address was used by U.S. investigators to identify Guccifer 2.0 as "a particular GRU officer working out of the agency's headquarters on Grizodubovoy Street (ru) in Moscow." [29]

In April 2018, BuzzFeed reported that messages showed WikiLeaks' interest in Guccifer 2.0's emails and files. [43]

On July 13, 2018, the United States Department of Justice (DOJ) indicted twelve Russian Intelligence Officers and revealed that Guccifer 2.0 was a persona used by GRU. [44]

Twitter suspended the persona's account on July 14, 2018, for "being connected to a network of accounts previously suspended for operating in violation of our rules." The account had been dormant for at least a year and a half. [45]

Computer hacking claims

Main article: 2016 Democratic National Committee email leak

On June 14, 2016, according to The Washington Post, the DNC acknowledged a hack [46] which was claimed by Guccifer 2.0. [4][5][6][7][31][47]

On July 18, 2016, Guccifer 2.0 provided exclusively to The Hill numerous documents and files covering political strategies,[2] including correlating the banks that received bailout funds with Republican Party and Democratic Party donations.[2]

On July 22, 2016, Guccifer 2.0 stated he hacked, then leaked, the DNC emails to WikiLeaks.[4][5][6][7][31][47] "Wikileaks published #DNCHack docs I'd given them!!!", tweeted Guccifer 2.0.[7]

On September 13, 2016, during a conference, an unknown and remote representative of Guccifer 2.0 released almost 700 megabytes' (MB) worth of documents from the DNC. [48] Forbes also obtained a copy of those.[8] On September 12, 2016, ahead of that conference, Guccifer posted a public Twitter message in which he confirmed that his representative was legitimate.[8] The Russian government denied any involvement.[48] The DNC, the DCCC, U.S. intelligence officials, and other experts speculated about Russia involvement.[48] NGP VAN, who state they are the "leading technology provider" for the Democratic campaigns, declined to comment on Guccifer 2.0's recent statements.[8]

On October 4, 2016, Guccifer 2.0 released documents and claimed that they were taken from the Clinton Foundation and showed "corruption and malfeasance" there.[49] Security experts quickly determined that the release was a hoax; the release did not contain Clinton Foundation documents, but rather consisted of documents previously released from the DNC and DCCC thefts, data aggregated from public records, and documents that were fabricated altogether as propaganda.[11][49] Singled out as particularly unrealistic was the idea that Clinton's team would have actually named a file "Pay for Play" on their own server, as Guccifer 2.0's screenshots of the alleged "hack" show.[10][49][50]

Former Trump confidant Roger Stone was in contact with Guccifer 2.0 during the campaign.[51]

#### Communications with WikiLeaks

A week after Guccifer 2.0 appeared online, WikiLeaks sent the persona a message saying to "send any new material here for us to review and it will have a much higher impact than what you are doing." [52] After not receiving a reply, on July 6, 2016 WikiLeaks sent another message that said "if you have anything hillary related we want it in the next twoo [sic] days prefable [sic] because the DNC is approaching and she will solidify bernie supporters behind her after." Guccifer 2.0 responded "ok ... i see," and WikiLeaks added "we think trump has only a 25% chance of winning against hillary ... so conflict between bernie and hillary is interesting." [53][54] On July 14, 2016 Guccifer 2.0 sent WikiLeaks an email with an encrypted attachment labeled "wk dnc link1.txt.gpg." [55] According to the indictment, the email explained that "the encrypted file contained instructions on how to access an online archive of stolen DNC documents." [52]

Four days later, WikiLeaks responded that it had received "the 1 Gb or so archive" and would release the files that week.[52] The DNC emails were released several days later.

#### Post-election activities

The Guccifer 2.0 persona went dark just before the U.S. presidential election, and resurfaced on January 12, 2017, following the public release of the Steele dossier that asserted the Trump campaign was cooperating with the Russians in their interference in the 2016 presidential election. The dossier also asserted that "Romanian hackers" had performed the hacks.

The Guccifer 2.0 persona made a blog post denying that they had any relation to the Russian government, and calling the technical evidence suggesting links to the Russian government "a crude fake." [28] In the blog post, Guccifer 2.0 indicated they had gained access to the DNC servers through a vulnerability in their NGP VAN software.[33]

#### Timeline of Guccifer 2.0

##### 2016

June: Around this time, the conspirators charged in the July 2018 indictment stage and release tens of thousands of stolen emails and documents using fictitious online personas, including "DCLeaks" and "Guccifer 2.0".[56]

June 15: "Guccifer 2.0" (GRU) claims credit for the DNC hacking and posts some of the stolen material to a website. CrowdStrike stands by its "findings identifying two separate Russian intelligence-affiliated adversaries present in the DNC network in May 2016." [57] Gawker publishes an opposition research document on Trump that was stolen from the DNC. "Guccifer 2.0" sent the file to Gawker.[54][58]

June 22: WikiLeaks reaches out to "Guccifer 2.0" via Twitter. They ask "Guccifer 2.0" to send them material because it will have a bigger impact if they publish it. They also specifically ask for material on Clinton they can publish before the convention.[54]

July 6: "Guccifer 2.0" releases another cache of DNC documents and sends copies to The Hill.[59][60]

July 13: "Guccifer 2.0" releases over 10,000 names from the DNC in two spreadsheets and a list of objectionable quotes from Sarah Palin.[60]

July 14: Four days after the murder of Seth Rich, "Guccifer 2.0" sends Assange an encrypted one-gigabyte file containing stolen DNC emails, and Assange confirms that he received it. WikiLeaks publishes the file's contents on July 22. The Mueller report asserts that Assange was "working to shift blame onto [Seth Rich] to obscure the source of the materials he was releasing".[55] The Senate Intelligence Committee reported that "WikiLeaks actively sought, and played, a key role in the Russian intelligence campaign and very likely knew it was assisting a Russian intelligence influence effort." [61]

July 18: "Guccifer 2.0" dumps a new batch of documents from the DNC servers, including personal information of 20,000 Democratic donors and opposition research on Trump.[62]

August 5: Stone writes an article for Breitbart News in which he insists "Guccifer 2.0" hacked the DNC, using statements by "Guccifer 2.0" on Twitter and to The Hill as evidence for his claim. He tries to spin the DNC's Russia claim as a coverup for their



supposed embarrassment over being penetrated by a single hacker.[63] The article leads to "Guccifer 2.0" reaching out to and conversing with Stone via Twitter.[64] August 12:

"Guccifer 2.0" releases a cache of documents stolen from the Democratic Congressional Campaign Committee.[65]

Journalist Emma Best has two simultaneous conversations by Twitter direct message with "Guccifer 2.0" and WikiLeaks. Best tries to negotiate the hosting of stolen DNC emails and documents on archive.org. WikiLeaks wants Best to act as an intermediary to funnel the material from "Guccifer 2.0" to them. The conversation ends with "Guccifer 2.0" saying he will send the material directly to WikiLeaks.[66]

August 13:

Twitter and WordPress temporarily suspend Guccifer 2.0's accounts.[65] Stone calls "Guccifer 2.0" a hero.[67]

August 15:

A candidate for Congress allegedly contacts Guccifer 2.0 to request information on the candidate's opponent. Guccifer 2.0 responds with the requested stolen information.[54] Guccifer 2.0 begins posting information about Florida and Pennsylvania races stolen from the DCCC.[54]

The GRU stops its five-attempts-per-second attack on the Illinois State Board of Elections servers.[68][69]

August 16: Stone sends "Guccifer 2.0" an article[70] he wrote for The Hill on manipulating the vote count in voting machines.[71] "Guccifer 2.0" responds the next day, "@RogerJStoneJr paying u back".[67]

August 22:

"Guccifer 2.0" allegedly sends DCCC material on Black Lives Matter to a reporter, and they discuss how to use it in a story. "Guccifer 2.0" also gives the reporter the password for accessing emails stolen from Clinton's staff that were posted to "Guccifer 2.0's" website but had not yet been made public. On August 31, The Washington Examiner publishes a story based on the material the same day the material is released publicly on Guccifer 2.0's website.[54][72]

Florida GOP campaign advisor Aaron Nevins contacts Guccifer 2.0 and asks for material. Nevins sets up a Dropbox account and "Guccifer 2.0" transfers 2.5 gigabytes of data into it. Nevins analyzes the data, posts the results on his blog, HelloFLA.com, and sends "Guccifer 2.0" a link. "Guccifer 2.0" forwards the link to Stone.[54][73]

August 23: The Smoking Gun reaches out to "Guccifer 2.0" for comment on its contacts with Stone. "Guccifer 2.0" accuses The Smoking Gun of working with the FBI.[67]

August 31: "Guccifer 2.0" leaks campaign documents stolen from House Minority Leader Nancy Pelosi's hacked personal computer.[74][75]

September 3–5: Wealthy Republican donor Peter W. Smith gathers a team to try to acquire the 30,000 deleted Clinton emails from hackers. He believes Clinton's private email server was hacked and copies of the emails were stolen.[76] Among the people recruited are former GCHQ information-security specialist Matt Tait,[77] alt-right activist Charles C. Johnson, former Business Insider CTO and alt-right activist Pax Dickinson, "dark web expert" Royal O'Brien, and Jonathan Safron.[78] Tait quickly abandons the team after learning the true purpose of the endeavor.[78] Hackers contacted in the

search include "Guccifer 2.0" and Andrew Auernheimer (a.k.a. "weev").[78] The team finds five groups of hackers claiming to have the emails. Two of the groups are Russian. Flynn is in email contact with the team. Smith commits suicide on May 14, 2017, about ten days after telling the story to The Wall Street Journal but before the story is published in June.[76]

September 15: "Guccifer 2.0" sends a Twitter direct message to DCLeaks informing them that WikiLeaks is trying to contact them to set up communications using encrypted emails.

October 5: Trump Jr. retweets a WikiLeaks tweet announcing an "860Mb [sic]" archive of various Clinton campaign documents from "Guccifer 2.0".[79]

October 7: At 12:40 p.m. EDT,[80] The DHS and the ODNI issue a joint statement[81] accusing the Russian government of breaking into the computer systems of several political organizations and releasing the obtained material via DCLeaks, WikiLeaks, and "Guccifer 2.0", with the intent "to interfere with the U.S. election process." [82]

2017

January 12: "Guccifer 2.0" denies having any relation to the Russian government.[33] [54]

March 10: Roger Stone admits to communicating with Guccifer 2.0.[64]

March 13: Senate Intelligence Committee Chairman Richard Burr says Roger Stone's communications with Guccifer 2.0 are part of the Committee's ongoing investigation.[83]

2018

March 22: The Daily Beast reports that Guccifer 2.0, the "lone hacker" who took credit for providing WikiLeaks with stolen emails from the Democratic National Committee, was in fact an officer of Russia's military intelligence directorate (GRU) and that Mueller has taken over the investigation into his criminal activities and his direct contact with Stone.[29]

June 18: Lawyers for Andrew Miller, a former associate of Roger Stone, challenge in court a subpoena he received for information about Stone, WikiLeaks, "Guccifer 2.0", "DCLeaks", and Julian Assange. Miller's lawyer Alicia Dearn asserts at the hearing that Miller had asked for immunity regarding political action committee transactions involving himself and Stone.[84]

See also

DCLeaks

Guccifer

Hillary Clinton controversies

Mueller report

Podesta emails

Russian interference in the 2016 United States elections

Vulkan files leak

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Guccifer 2.0 website

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stolas demon

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Biblically Accurate Stolas : r/HelluvaBoss

Stolas is a powerful demon prince from demonology, known from grimoires like The



Lesser Key of Solomon, depicted as a crowned owl or raven with long legs, commanding 26 demon legions and teaching astronomy, botany (plants), and mineralogy (gems). Popularized in media like Helluva Boss, he's a fallen angel who fell with Lucifer, often shown as a wise but flamboyant figure with aristocratic knowledge, making him a popular subject in fantasy and occult lore.

#### Key Characteristics

Title: Great Prince of Hell.

Appearance: Most famously a crowned owl or raven with long legs, but can also appear as a man.

Powers/Knowledge: Teaches astronomy, the properties of herbs and plants, and the value of precious stones.

Command: Commands 26 legions of demons.

Origin: A fallen angel, he aided Lucifer in the War in Heaven, according to some lore.

#### In Popular Culture (Helluva Boss)

A main character in the animated series Helluva Boss, a Goetic demon prince with aristocratic airs.

He is the owner of a grimoire, which he trades with Blitzo in exchange for sexual favors, creating a central plot point.

His design in the show reflects his traditional description as a bird-like demon with a crown.

#### Stolas - Hellaverse Wiki

Appearance. Stolas is an anthropomorphic owl demon. He is tall and slender, with a white, heart-shaped facial disk and small black...

#### Hellaverse Wiki

#### Stolas: The Great Bird-Prince | Demon Compendium

Dec 24, 2024 — the ARs goosa is one of the foundations of our modern understanding of demonology. the first book of what's referred t...

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#### Stolas - - Occult Encyclopedia

Dec 18, 2022 — Stolas (also known as Stolos or Solas) is the 36th Goetic demon and a prince in the hierarchy of Hell.

- Occult Encyclopedia

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[https://en.wikipedia.org › wiki › Stolas](https://en.wikipedia.org/wiki/Stolas)

Stolas may refer to: Stolas (demon), a demon in the Ars Goetia; Stolas (band), an American post-hardcore band; Stolas: Book of Angels Volume 12, ...

People also ask

What demon is Stolas based off of?

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Stolas | The Demonic Paradise Wiki - Fandom

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[https://the-demonic-paradise.fandom.com › wiki › Stolas](https://the-demonic-paradise.fandom.com/wiki/Stolas)

Stolas is the 36th Spirit of the Ars Goetia and a Great Prince of Hell, commanding twenty-six legions of demons (twenty-five according to other authors).

Stolas

- Occult Encyclopedia

[https://www.occult.live › index.php › Stolas](https://www.occult.live/index.php)

Dec 18, 2022 — Stolas (also known as Stolos or Solas) is the 36th Goetic demon and a prince in the hierarchy of Hell. The demon Stolas.

stolas demon from [www.occult.live](http://www.occult.live)

We need to talk about Stolas...

Medium · Garra

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Stolas is a great prince, appearing in the forme of a nightraven, before the exorcist, he taketh the image and shape of a man, and teacheth astronomie, ...

stolas demon from [medium.com](http://medium.com)

Why is Stolas so odd compared to all the rest goetia ...

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Prince Stolas. This guy is the far from evil and scary looking. On looks, he is literally just a giant owl with a crown on his head.

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5:12

Learn about Stolas, a great Prince of Hell from the Lesser Key of Solomon, known for his knowledge of astronomy and herbs.

Stolas & Goetic Demons Explained! (Hazbin Hotel / Helluva ...

YouTube · Cartoon Universe

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Unveiling the Dark Secrets of the Cursed Idol of Stolas

Instagram · Alexander Calvo

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The DispatchIst

<http://www.dispatch.ist> › architecture › demons › stolas

Mar 7, 2022 — Stolas is a goetic fan favorite generally, and a somewhat sympathetic character in the world of Hazbin Hotel/Helluva Boss.

stolas demon from [www.dispatch.ist](http://www.dispatch.ist)

Stolas – @scarletarosa on Tumblr

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One of the goetic demons and a prince who serves under the High King Leviathan in his kingdom of desolation. Stolas was once one of the Angels s and is a king ...

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Stolas the Demon Prince for Dungeons & Dragons ...

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<https://dmdave.com> › Home › Monsters

Nov 23, 2018 — Stolas is a demon prince of the Abyss. He is known as the Watcher and Prince of Omens. He rules over the monstrous stikini, owl-like demons

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The Demon Stolas, a Great Prince of hell, he ...

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Stolas may refer to:

Stolas (demon), a demon in the Ars Goetia

Stolas (band), an American post-hardcore band

Stolas: Book of Angels Volume 12, a 2009 Masada Quintet album

Stolas (beetle), a genus of beetles in the family Chrysomelidae

Stolas, a character in the animated series Helluva Boss

Persons with the name

Alexander Stølås (born 1989), Norwegian footballer

See also

Stola (disambiguation)

Disambiguation icon

This disambiguation page lists articles associated with the title Stolas.

If an internal link led you here, you may wish to change the link to point directly to the intended article.

Category: Disambiguation pages

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## The 72 sigils

In this article, the demons' names are taken from the goetic grimoire *Ars Goetia*, which differs in terms of number and ranking from the *Pseudomonarchia Daemonum* of Johann Weyer. As a result of multiple translations, there are multiple spellings for some of the names, explained in more detail in the articles concerning them.[1][2] The sole demon which appears in *Pseudomonarchia Daemonum* but not in the *Ars Goetia* is *Prufas*. Each ranking represents association with one of the traditional astrological planets; kings with the Sun, marquises with the Moon, presidents with Mercury, dukes with Venus, earls with Mars, princes with Jupiter, and the sole knight with Saturn.

The 72 angels of the *Shem HaMephorash* are considered to be opposite and balancing forces against these fallen angels.

## Demons

Main article: *The Lesser Key of Solomon*  
Kings

Dictionnaire Infernal illustration of Bael

Paimon as depicted in Collin de Plancy's *Dictionnaire Infernal*, 1863 edition

Asmodeus as depicted in Collin de Plancy's *Dictionnaire Infernal*

Purson's image in Mathers's *The Goetia* corresponds to *Prufas*' illustration from the *Dictionnaire Infernal*

A woodcarving of Belial and some of his followers from Jacobus de Teramo's book *Buche Belial* (1473)

## The Seal of Belial according to the *Ars Goetia*

According to the *Grand Grimoire*, Bael (or Bael) is the head of the infernal powers. He is also the first demon listed in Wierus's *Pseudomonarchia daemonum*. According to Wierus, Bael is the first king of Hell with estates in the east. He has three heads: a toad, a man, and a cat. He also speaks in a raucous, but well-formed voice, and commands 66 legions. Bael teaches the art of invisibility, and may be the equivalent of Baal or Baalzebub, one of the Seven princes of Hell.[3]

Paimon (also Paimonia, Paymon) is one of the Kings of Hell, more obedient to Lucifer than other kings are, and has two hundred legions of demons under his rule. He has a great voice and roars as soon as he comes, speaking in this manner for a while until the conjurer compels him and then he answers clearly the questions he is asked. When a conjurer invokes this demon he must look towards the northwest, the direction of Paimon's house, and when Paimon appears he must be allowed to ask the conjurer what he wishes and be answered, in order to obtain the same from him.

Paimon teaches all arts, philosophies, and sciences, and secret things; he can reveal all mysteries of the Earth, wind, and water, what the mind is, and where it is, and everything the conjurer wants to know. He gives good familiars, dignities and confirms them, and binds men to the conjurer's will.

If Paimon is cited alone, buffering or sacrifice must be done, and he will accept it, though the precise nature of the gift is unclear; then two kings called Beball (Bebal or Labal) and Abalam (Abalim) will go to him together with other spirits, often twenty-five legions; but these other spirits do not always come unless the conjurer calls upon them. Paimon is depicted as a man with an effeminate face, wearing a precious crown, and riding a dromedary. Before him often goes a host of demons with the shape of men, playing trumpets, cymbals, and any other sort of musical instrument.

Beleth (also spelled Bilet, Bileth, and Byleth) is a mighty and terrible king of Hell, who has eighty-five legions of demons under his command. He rides a warhorse, and all kind of music is heard before him, according to most authors on demonology and the most known grimoires. According to Pseudomonarchia Daemonum, Ham, son of Noah, was the first in invoking him after the flood, and wrote a book on mathematics with his help. When appearing, he looks very fierce to frighten the conjurer or to see if he is courageous. The conjurer must be brave, and holding a hazel wand in his hand must draw a triangle by striking towards the South, East, and upwards, and command Beleth into it by means of some conjurations.

If he does not obey, the conjurer must rehearse all threats the conjurations said. Then, Beleth will obey and do all that he is commanded, but the conjurer must be respectful and pay homage unto Beleth due to his rank, and hold a silver ring in the middle finger of the left hand against his face, as it is the use of hellish kings and princes before Amaymon.

Beleth gives all the love of men and women he is commanded until the conjurer is satisfied.

Purson (also Curson, Pursan) is a Great King of Hell, being served and obeyed by twenty-two legions of demons.

Not to be confused with Corson.

He knows of hidden things, can find treasures, and tells past, present and future. Taking a human or aerial body he answers truly of all secret and divine things of Earth and the creation of the world. He also brings good familiars. Purson is depicted as a man with the face of a lion, carrying a ferocious viper in his hand, and riding a bear. Before him, there can be heard many trumpets sounding. This demon blows internal trumpets, and is believed connected to the revelator to the Antichrist.

Asmodeus (also Ashmodai, Asmodeus, Asmody, Asmoday) appears as the king 'Asmoday' in the Ars Goetia, where he is said to have a seal in gold and is listed as

number thirty-two according to respective rank.[4] He "is strong, powerful and appears with three heads; the first is like a bull, the second like a man, and the third like a ram or a goat; the tail of a serpent, and from his mouth issue flames of fire." [4] Also, he sits upon an infernal dragon, holds a lance with a banner, and amongst the Legions of Amaymon, Asmoday governs seventy two legions of inferior spirits.[4]

(King/Count) Vine (also Viné, Vinea) is an Earl and also a King of Hell, commanding 36 legions of demons. He can tell present, past, and future, discover witches and hidden things, create storms and make the water rough by means of them, and also bring down walls and build towers. This demon is portrayed as a lion holding a snake in his hand and riding a black horse. The etymology of his name seems to be the Latin word 'vinea', vine, that is also the name given to an ancient war machine made of wood and covered with leather and branches, used to overthrow walls.

Balam (also Balaam, Balan) is a great and powerful king of Hell who commands over forty legions of demons. He gives perfect answers on things past, present, and to come, and can also make men invisible and witty. Balam is depicted as being three-headed. One head is the head of a bull, the second of a man, and the third of a ram. He has flaming eyes and the tail of a serpent. He carries a hawk on his fist and rides a strong bear. At other times, he is represented as a naked man riding a bear. His name seems to have been taken from Balaam, the biblical magician.

(King/President) Zagan[5] (also Zagam) is a Great King and President of Hell, commanding over thirty-three legions of demons. He makes men witty; he can also turn wine into water, water into wine, and blood into wine (according to Pseudomonarchia Daemonum blood into oil, oil into blood, and a fool into a wise man). Other of his powers is that of turning metals into coins that are made with that metal (i.e., gold into a gold coin, copper into a copper coin, etc.). Zagan is depicted as a griffin-winged bull that turns into a man after a while.

Belial (also Belhor, Baalial, Beliar, Beliall, Beliel) is listed as the sixty-eighth spirit of The Lesser Key of Solomon. He is a King of Hell with 80 legions of demons and 50 legions of spirits under his command. He was created as the first, after Lucifer.[6] He has the power to distribute senatorships and gives excellent familiars. He must be presented with offerings, sacrifices, and gifts, or else he will not give true answers to demands.[6]

Dukes

Amduscias

Amduscias

Agares from Collin de Plancy, Dictionnaire Infernal, Paris, 1863

Agares from Collin de Plancy, Dictionnaire Infernal, Paris, 1863

Eligos (Abigor). Illustration from Collin de Plancy's Dictionnaire Infernal

Eligos (Abigor). Illustration from Collin de Plancy's Dictionnaire Infernal

Astaroth illustration from the Dictionnaire Infernal (1818)

Astaroth illustration from the Dictionnaire Infernal (1818)

The Seal of Murmur according to the Ars Goetia



The Seal of Murmur according to the Ars Goetia

Amdusias<sup>[5]</sup> (also Amduscias, Amdukias or Ambduscias) has 29 legions of demons and spirits under his command. He is depicted as a human with claws instead of hands and feet, the head of a unicorn, and a trumpet to symbolize his powerful voice. Amdusias is associated with thunder and it has been said that his voice is heard during storms. In other sources, he is accompanied by the sound of trumpets when he comes and will give concerts if commanded, but while all his types of musical instruments can be heard they cannot be seen. He is regarded as being the demon in charge of the cacophonous music that is played in Hell. He can make trees bend at will.

Agares (or Agreas),<sup>[5]</sup> ruling the eastern zone of Hell, and being served by 31 legions of demons. He can make runaways come back and those who stand still<sup>[7]</sup> run, finding pleasure in teaching immoral expressions. He also has the power to destroy dignities, both temporal and supernatural.<sup>[5][8]</sup> He is depicted as a pale old man riding a crocodile.<sup>[8][9]</sup>

Valefar (or Malaphar, Malephar, Valafar, Valefor) is a Duke of Hell.<sup>[10]</sup> He tempts people to steal and is in charge of a good relationship among thieves. Valefar is considered a good familiar by his associates "till they are caught in the trap."<sup>[11]</sup> He commands ten legions of demons.<sup>[6]</sup> He is represented as a lion with the head of a man, or as a lion with the head of a donkey.<sup>[6]</sup>

Barbatos is an Earl and Duke of Hell, ruling thirty legions of demons and has four kings as his companions to command his legions. He gives the understanding of the voices of the animals, says past and future, conciliates friends and rulers, and he can lead men to hidden treasures that have been hidden by the enchantment of magicians. His name seems to derive from Latin "barbatus", bearded, old man, philosopher. He is mentioned in The Lesser Key of Solomon.

Gusion (also Gusoin, Gusoyne, Augusyon) is a strong Great Duke of Hell, and rules over forty legions of demons. He tells all past, present and future things, shows the meaning of all questions that are asked to him, reconciles friends, and gives honour and dignity. He is depicted as a baboon or according to some, in the form of a "Xenopilus."<sup>[6]</sup>

Eligos is a Great Duke of Hell, ruling 60 legions of demons. He discovers hidden things and knows the future of wars and how soldiers should meet. He also attracts the favor of lords, knights and other important persons. He is depicted in the form of a goodly knight carrying a lance, an ensign and a serpent. The Pseudomonarchia Daemonum names his alias as Abigor or Eligor.<sup>[12]</sup>

Zepar<sup>[5]</sup> is a Great Duke of Hell. He commands 26 legions of inferior spirits. His office is to cause women to love men, and bring them together in love. He makes women barren. He is depicted with red clothes and armor, like a soldier.

Bathin (or Bathym, Mathim, Marthim) is a Duke (Great Duke according to Pseudomonarchia Daemonum) of Hell, who has under his command thirty legions of demons. He knows the virtues of precious stones and herbs, and can bring men suddenly from one country to another. He helps one attain astral projection, and takes you wherever you want to go. He is depicted as a strong man with the tail of a serpent, riding a pale horse.

Saleos<sup>[5]</sup> (also Sallos and Zaleos) is a mighty Great Duke (a Great Earl to Johann Weyer) of Hell, ruling thirty legions of demons, although Weyer does not mention

anything concerning legions under his command. He is of a pacifist nature, and causes men to love women and women to love men. He is depicted as a gallant and handsome soldier, wearing a ducal crown, and riding a crocodile.

Aim (also Aym or Haborym) is a Great Duke of Hell, very strong, and rules over twenty-six legions of demons. He sets cities, castles and great places on fire, makes men witty in all ways, and gives true answers concerning private matters. He is depicted as a man (handsome to some sources), but with three heads, one of a serpent, the second of a man, and the third of a cat to most authors, although some say of a calf, riding a viper, and carrying in his hand a lit firebrand with which he sets the requested things on fire.

Buné is a Great Duke of Hell, mighty and strong, who has thirty legions of demons under his command. He changes the place of the dead and makes them demons that are under his power to gather together upon those sepulchres. Buné makes men eloquent and wise, and gives true answers to their demands and also richness. He speaks with a comely high voice. Buné is depicted as a three-headed dragon, being his heads like those of a dog, a griffin, and a man (although according to some grimoires he has two heads like a dragon and the third like a man).

Berith (also Baal-berith) is a Great Duke of Hell, powerful and terrible, and has twenty-six legions of demons under his command. He tells things of the past, present and future with true answers; he can also turn all metals into gold, give dignities to men and confirm them. He speaks with a clear and subtle voice, and as recounted in Aleister Crowley's *Illustrated Goetia*, he is a liar when not answering questions. To speak with him the conjurer must wear a silver ring and put it before his face in the same form as it is needed in Beleth's case and demons do before Amaymon. He is depicted as a soldier wearing red clothes, a golden crown, and riding a red horse. Books on the subject tell that he is called according to whom invokes him, being called Berith by the Jews (see below). According to some demonologists from the 16th century, his power is stronger in June, meanwhile to Sebastien Michaelis he suggests murder and blasphemy and his adversary is St. Barnabas. His name was surely taken from Ba'al Berith, a form of Baal worshiped in Berith (Beirut), Phoenicia. In Alchemy Berith was the element with which all metals could be transmuted into gold.[citation needed] "Berith" is the Hebrew word for covenant, it was originated from the Akkadian (Babylonian) word "Biritu" which means "to fetter" or "to bond".

Astaroth (also Ashtaroth, Astarot and Asteroth) is referred to in *The Lesser Key of Solomon* as a very powerful demon who commands 40 legions of demons.

Seal of Astaroth, as depicted in *The Lesser Key of Solomon*

In art, in the *Dictionnaire Infernal*, Astaroth is depicted as a nude man with feathered wings, wearing a crown, holding a serpent in one hand, and riding a beast with dragon-like wings and a serpent-like tail. According to Sebastien Michaelis he is a demon of the First Hierarchy, who seduces by means of laziness, vanity, and rationalized philosophies. His adversary is St. Bartholomew, who can protect against him for he has resisted Astaroth's temptations. To others, he teaches mathematical sciences and handicrafts, can make men invisible and lead them to hidden treasures, and answers every question formulated to him. He was also said to give to mortal beings the power over serpents. His name is possibly taken from the goddess Asherah or Astarte.

Focalor (also Forcalor, Furcalor) is a powerful Great Duke of Hell, commanding three or thirty legions of spirits. Focalor is mentioned in The Lesser Key of Solomon as the forty-first of the 72 goetic demons. According to the grimoire: Focalor appears in the form of a man with a griffin's wings, kills men, drowns them, and overthrows warships; but if commanded by the conjurer he will not harm any man or thing. Focalor has power over wind and sea, and had hoped to return to heaven after one thousand years, but he was deceived in his hope.

Vepar (also Separ, Vephar) is a strong Great Duke of Hell, and rules twenty-nine legions of demons. He governs the waters and guides armoured ships laden with ammunition and weapons; he can also make, if requested, the sea rough and stormy, and to appear full of ships. Vepar can make men die in three days by putrefying sores and wounds, causing worms to breed in them, but if requested by the conjurer he can heal them immediately. Vepar is depicted as a mermaid.

Vual (also Uvall, Voval, Vreal, Wal, Wall) is a mighty Great Duke of Hell, commanding thirty-seven legions of demons. He gives the love of women, causes friendship between friends and foes, and tells things past, present and to come. Vual is depicted as a dromedary that after a while changes shape into a man, and speaks the Egyptian language, but not perfectly, with a deep voice.

Crocell (also called Crokell or Procell) is the 49th spirit of the Goetia, manifesting as an angel with a tendency to speak in dark and mysterious ways. Once a member of the Powers, he is now a Duke of Hell who rules over 48 legions of demons. When summoned by a conjuror, he can teach geometry and other liberal sciences. He can also warm bodies of water, create the illusion of the sound of rushing waters, and reveal the location of natural baths.

Allocer (also Alocer, Alloces) is a demon whose title is Great Duke of Hell, and who has thirty-six legions of demons under his command. He induces people to immorality and teaches arts and all mysteries of the sky. He is described by Johann Weyer as appearing in the shape of a knight mounted on an enormous horse. His face has leonine characteristics; he has a ruddy complexion and burning eyes; and he speaks with much gravity. He is said to provide good familiars, and to teach astronomy and liberal arts. Allocer is often depicted riding a horse with dragon legs.

(Duke/Count) Murmur (also Murmus, Murmuur, Murmux) is a Great Duke and Earl of Hell, and has thirty legions of demons under his command. He teaches Philosophy, and can oblige the souls of the deceased to appear before the conjurer to answer every desired question. Murmur is depicted as a soldier riding a vulture or a griffin, and wearing a ducal crown. Two of his ministers go before him making the sound of trumpets. "Murmur" in Latin means noise, whisper, murmur, and the sound of the trumpet.

Gremory (also Gamory, Gemory, or Gomory) is a strong Duke of Hell that governs twenty-six legions of demons. He tells all things past, present and future, about hidden treasures, and procures the love of women, young and old, but especially maidens. He is depicted as appearing in the form of a beautiful woman with the crown of a duchess tied around her waist, and riding a camel.

Vapula (also Naphula) is a powerful Great Duke of Hell that commands thirty-six legions of demons. He teaches philosophy, mechanics, and sciences. Vapula is depicted as a

griffin-winged lion.

Flauros (also Flavros, Hauras, Haures, Havres)[13] is a strong Great Duke of Hell, having thirty-six (twenty according to *Pseudomonarchia Daemonum*) legions of demons under his rule. He gives true answers of all things past, present and future, but he must be first commanded to enter a magic triangle for if not he will lie, deceive the conjurer, and beguile him in other business. But if he enters the triangle he will answer truly, and gladly speak about divinity, the creation of the world, himself, and other fallen angels. He can also destroy all the conjurer's enemies by burning them up. If the magician requests it, he will not suffer temptations from any spirit or in any form. Commonly people represent him as a humanoid leopard with big claws. Flauros is depicted as a terrible and strong leopard that under request of the conjurer changes into a man with fiery eyes and an awful expression. Flauros can also supposedly be called upon when a mortal wishes to take vengeance on other demons. This is likely included in his capability to destroy the conjurer's enemies.

Dantalion's seal from the Lesser Key of Solomon[14]

Dantalion (or Dantalian) is a powerful Great Duke of Hell, with thirty-six legions of demons under his command; he is the 71st of 72 spirits of Solomon. He teaches all arts and sciences, and also declares the secret counsel of anyone, given that he knows the thoughts of all people and can change them at his will. He can also cause love and show the similitude of any person, show the same by means of a vision, and let them be in any part of the world they will. He is depicted as a man with many appearances, which means the faces of all men and women. There are also many depictions in which he is said to hold a book in one of his hands:

The Seventy-first Spirit is Dantalion. He is a Duke Great and Mighty, appearing in the Form of a Man with many Countenances, all Men's and Women's Faces; and he hath a Book in his right hand. His Office is to teach all Arts and Sciences unto any; and to declare the Secret Counsel of any one; for he knoweth the Thoughts of all Men and Women, and can change them at his Will. He can cause Love, and show the Similitude of any person, and show the same by a Vision, let them be in what part of the World they Will. He governeth 36 Legions of Spirits; and this is his Seal, which wear thou, etc.

—The Lesser Key of Solomon

Princes

Sytry's Seal.

Sytry's Seal

Stolas as illustrated by Louis Le Breton in *Dictionnaire Infernal*.

Stolas as illustrated by Louis Le Breton in *Dictionnaire Infernal*

Stolas' Seal.

Stolas's seal

A description of the demon Stolas. Illustrated by Louis Le Breton.

A description of the demon Stolas, illustrated by Louis Le Breton

An early woodcut image of Orobas.

An early woodcut image of Orobas

Orobas' Seal.

Orobas's Seal

Vassago (also Vasago, Usagoo) is a mighty Prince of Hell (see Hierarchy of demons), ruling over twenty-six legions of demons. He can be persuaded to tell the magician of events past and future, can discover hidden and lost things, and has a "good" nature.[9] A partial description from The Lesser Key of Solomon is as follows: "The Third Spirit is a Mighty Prince, being of the same nature as Agares. He is called Vassago. This Spirit is of a Good Nature, and his office is to declare things Past and to Come, and to discover all things Hidden or Lost." According to the Liber Officium Spirituum, he manifests as an angel.

Sitri[5] (also spelled Bitru, Sytry) is a Great Prince of Hell, and reigns over sixty legions of demons. He causes men to love women and vice versa, and can make people bare themselves naked if desired. He is depicted with the face of a leopard and the wings of a griffin, but under the conjurer's request he changes into a very beautiful man.

(Count/Prince) Ipos (also Aiperos, Ayperos, Ayporos, Ipes) is an Earl and powerful Prince of Hell who has thirty-six legions of demons under his command. He knows and can reveal all things, past, present and future. He can make men witty and valiant. He is commonly depicted with the body of an angel with the head of a lion, the tail of a hare, and the feet of a goose, less frequently in the same shape but with the body of a lion, and rarely as a vulture.

(Prince/President) Gaap (also Goap, Tap) is a mighty Prince and Great President of Hell, commanding sixty-six legions of demons. He is, according to The Lesser Key of Solomon, the king and prince of the southern region of Hell and Earth, and according to the Pseudomonarchia Daemonum (False Monarchy of the Demons) the king of the western region and as mighty as Beleth, but for both he is the guide of the four kings (the others being Ziminiar, Corson and Amaymon, although some translations of The Lesser Key of Solomon consider Belial, Beleth, Asmodai and Gaap, not giving detail on the cardinal point they rule). He is said to be better conjured to appear when the Sun is in a southern zodiacal sign. Gaap teaches Philosophy and all liberal sciences, can cause love or hate and make men insensible and invisible, deliver familiars out of the custody of other magicians, teaches how to consecrate those things that belong to the dominion of Amaymon his king (there is a contradiction here, see above), gives true answers concerning past, present and future, and can carry and re-carry men and things speedily from one nation to another at the conjurer's will. According to a few authors he can make men ignorant. According to Pseudomonarchia Daemonum, certain necromancers honour him with sacrifices and burning offerings. He is depicted in human shape.

Stolas[5] (also known as Stolos, Stoppas and Solas) is "a Great Prince of Hell, commands twenty-six legions of demons. He teaches astronomy and is knowledgeable about herbs, plants, and precious stones. He is often depicted as a raven or a crowned owl with long legs." [15]

Orobas is a very powerful Great Prince of Hell, having twenty legions of demons under his control. He supposedly gives true answers of things past, present and to come, divinity, and the creation of the world; he also confers dignities and prelacies, and the favour of friends and foes. Orobas is faithful to the conjurer, does not permit that any spirit tempts him, and never deceives anyone. He is depicted as a horse that changes into a man under the conjurer's request. The name could come from Latin "orobias", a type of incense.

Seir (also known as Seire, Seere, or Sear) is a Prince of Hell with 26 legions of demons under his command. He can go to any place on earth in a matter of seconds to accomplish the will of the conjurer, bring abundance, help in finding hidden treasures or in robbery, and is not a demon of evil but good nature, being mostly indifferent to evilness. He is depicted as a man riding a winged horse, and is said to be beautiful.

Marquises

Gamigin (also Gamygin, Gamigm or Samigina) is a Great Marquis of Hell who rules over thirty legions of demons.[8][9][16] He teaches all liberal sciences and gives an account of the souls of those who died in sin[9][16] and who drowned in the sea,[8] speaking with a rough voice.[8][9][16] He also answers what is asked about, and stays with the conjurer until they are satisfied.[8] Gamigin is depicted as a little horse[8][9][16] or a donkey,[9][16] which changes form into a man under the conjurer's request.[8][9][16]

Aamon[5] (or Amon, Nahum) is a Marquis of Hell who governs forty infernal legions. He appears as a wolf with a serpent's tail who can breathe fire, or as a man with a raven's head, sometimes depicted with canine teeth. He tells of all things past and future. He procures feuds, and reconciles controversies between friends and foes.

Leraje (also Leraie, Leraikha, Leraye, Loray, Oray) is a mighty Great Marquis of Hell who has thirty legions of demons under his power. He causes great battles and disputes, and makes gangrene wounds caused by arrows. He is depicted as a gallant and handsome archer clad in green, carrying a bow and quiver.

The demon Naberius (also Naberus, Nebiros and Cerberus, Cerbere) was first mentioned by Johann Weyer in 1583.[17] He is supposedly the most valiant Marquis of Hell, and has nineteen legions of demons under his command. He makes men cunning in all arts, but especially in rhetoric, speaking with a hoarse voice. He also restores lost dignities and honors, although to Johann Weyer he procures the loss of them. Naberius appears as a three-headed dog or a raven. He has a raucous voice but presents himself as eloquent and amiable. He teaches the art of gracious living. He is depicted as a crow or a black crane. Concerning his name, it is unclear if there is an association with the Greek Cerberus. It is said that in 1583, Johann Weyer considers both of them to be the same demon. He claimed:

Naberius [Naberus], alias Cerberus, is a valiant marquesse, shewing himselfe in the forme of a crowe, when he speaketh with a hoarse voice: he maketh a man amiable and cunning in all arts, and speciallie in rhetorike, he procureth the losse of prelacies and dignities: nineteene legions heare (and obeie) him.

(Marquis/Count) Ronové (also Ronove, Roneve, Ronwe) is a Marquis and Great Earl of Hell, commanding twenty legions of demons. He teaches Rhetoric, languages, and gives good and loyal servants and the favour of friends and foes. He is described as a

monster holding a staff, without detailing his appearance.

Ronové as depicted in the Dictionnaire Infernal

He is also described as taker of old souls; often coming to earth to harvest souls of decrepit humans and animals near death.

Forneus is a Great Marquis of Hell, and has twenty-nine legions of demons under his rule. He teaches Rhetoric and languages, gives men a good name, and makes them be loved by their friends and foes. He is depicted as a great sea monster. His name seems to come from Latin "fornus", "furnus": "oven".

Marchosias (also Marchocias) is a powerful Great Marquis of Hell, commanding thirty legions of demons. He is a strong and excellent fighter and very reliable to the conjurer, giving true answers to all questions. Marchosias hoped after 1,200 years to return to heaven with the non-fallen angels, but he is deceived in that hope. He is depicted as a wolf with a man's form as well as a griffin's wings and a serpent's tail, that under request changes shape into a man. The name Marchosias comes from Late Latin marchio, "marquis".

Marchosias

Phenex (also Pheynix, Phoenix, Phoeniex) is a Great Marquis of Hell and has twenty legions of demons under his command. He teaches all wonderful sciences, is an excellent poet, and is very obedient to the conjuror. Phenex hopes to return to Heaven after 1,200 years, but he is deceived in this hope. He is depicted as a phoenix, which sings sweet notes with the voice of a child, but the conjurer must warn his companions (for he has not to be alone) not to hear them and ask him to put in human shape, which the demon supposedly does after a certain amount of time. Johann Weyer's

Pseudomonarchia Daemonum describes this spirit as follows:

Phoenix is a great marquesse, appearing like the bird Phoenix, having a child's voice: but before he standeth still before the conjuror, he singeth manie sweet notes. Then the exorcist with his companions must beware he give no eare to the melodie, but must by and by bid him put on humane shape; then will he speake marvelous of all wonderfull sciences. He is an excellent poet, and obedient, he hopeth to returne to the seventh throne after a thousand two hundredth yeares, and governeth twentie legions.

Sabnock[5] (also spelled Sab Nac, Sabnac, Sabnach, Sabnack, Sabnacke, Salmac and Savnock) is a mighty Great Marquis of Hell, who has 50 legions of demons under his command. He builds high towers, castles and cities, furnishing them with weapons, ammunition, etc., gives good familiars, and can afflict men for several days making their wounds and sores gangrenous or filling them with worms. Sabnock is depicted as a soldier with armor and weapons, the head of a lion, and riding a pale horse.

Sabnock

Shax[5] (also spelled Chax, Shan, Shass, Shaz, and Scox) is a Great Marquis of Hell, and has power over 30 legions of demons on evil horses. He takes away the sight, hearing and understanding of any person under the conjurer's request, and steals money out of kings' houses, carrying it back to the people. He also steals horses and

everything the conjurer asks. Shax can also discover hidden things if they are not kept by evil spirits, and sometimes gives good familiars, but sometimes those familiars deceive the conjurer. He should not be bothered too often. Shax is thought to be faithful and obedient, but is a great liar and will deceive the conjurer unless obliged to enter a magic triangle drawn on the floor. He will then speak marvellously and tell the truth. He knows when lies are told and uses these to teach lessons. He is depicted as a stork that speaks with a hoarse but subtle voice; his voice changes into a beautiful one once he enters the magic triangle.

Orias (also spelled Oriax) is a Great Marquis of Hell, and has thirty legions of demons under his command. He knows and teaches the virtues of the stars and the mansions of the planets (the influence of each planet depending on the astrological sign in which it is in a specific moment and the influence of that sign on an individual depending on how the zodiac was configured at the moment of their birth or at the moment of asking a question to the astrologist); he also gives dignities, prelacies, and the favour of friends and foes, and can metamorphose a man into any shape.

Andras[5] is a Great Marquis of Hell, having under his command thirty legions of demons. He sows discord among people. According to the Goetia, Andras was a Grand Marquis of Hell, appearing with a winged angel's body and the head of an owl or raven, riding upon a strong black wolf and wielding a sharp and bright sword. He is the 63rd of the 72 spirits of Solomon. Andras was considered to be a highly dangerous demon, who could kill the conjuring magician and his assistants if precautions were not taken.

Andras

The Dutch demonologist Johannes Wier, in his *Pseudomonarchia Daemonum*, says of Andras:

Andras is a great marquesse, and seemes in an angels shape with a head like a blacke night raven, riding upon a blacke and a verie strong wolfe, flourishing with a sharpe sword in his hand, he can kill the maister, the servant, and all assistants, he is author of discords, and ruleth thirtie legions

Another demonologist, Collin de Plancy, also mentions Andras in his writings:

Grand Marquis of Hell. He appears to have the body of an angel and the head of a wood owl, and to be riding a black wolf and carrying in his hand a pointed saber. He teaches those whom he favors to kill their enemies, masters and servants. He stirs up trouble and dissension. He commands thirty legions.

Andrealphus[5] (also Androalphus) appears as the 54th demon in Johann Weyer's tome on demonology *Pseudomonarchia Daemonum* and is described as a great Marquis with the appearance of a peacock who raises great noises and teaches cunning in astronomy, and when in human form also teaches geometry in a perfect manner. He is also described as ruling over thirty legions and as having the ability to turn any man into a bird. Andrealphus also appears as the 65th demon in the Goetia where he is described with similar traits, but also including the ability to make men subtle in all things pertaining to Mensuration, among other things. He is also alternatively known as Adrammelech.



Kimaris (also known by the alternate names Cimeies, Cimejes and Cimeries) is most widely known as the 66th demon of the first part of the Lemegeton (popularly known as the *Ars Goetia*). He is described as a warrior riding a goodly black horse, and possesses the abilities of locating lost or hidden treasures, teaching trivium (grammar, logic and rhetoric) and making a man into a warrior of his own likeness. He holds the rank of marquis, and is served by 20 legions. He also rules over all the spirits of Africa. Much the same description is found in the earlier text of Johann Weyer's catalog of demons, *Pseudomonarchia Daemonum* (published 1563). Earlier still is the Munich Handbook of Necromancy: Clm 849 (published by Richard Kieckhefer, as *Forbidden Rites: a necromancer's manual of the 15th century* 1998) which lists an entity named Tuvries with much the same characteristics, except that he has 30 legions of servitors, and can cause a person to cross seas and rivers quickly. Most likely, Tuvries is a mistranscription of Cymries. Kimaris, as Cimeries, is also found on Anton LaVey's list of infernal names, although it is not known why LaVey chose Kimaris as one of the comparatively few Goetic daimons included. Aleister Crowley, in 777, gives Kimaris the Hebrew spelling KYMAVR and attributes him to the four of disks and the third decan of Capricorn by night. KYMAVR may allude to "Khem-our" (black light), a form of Horus mentioned in H. P. Blavatsky's *Secret Doctrine*. In Sepher Sephiroth, he is listed as KYTzAVR, with a gematria of 327, although KYMAVR=277. Since Tzaddi=90, which is also Mem spelled in full, the gematric substitution may be deliberate or a blind. In Harleian Ms. 6482, titled "The Rosie Crucian Secrets" (printed by the Aquarian Press, 1985), Dr. Rudd lists Cimeries as the 26th spirit made use of by King Solomon. He also attributes an angel Cimeriel to one of Dee's Enochian Ensigns of Creation, the tablet of 24 mansions (see McLean, *Treatise on Angel Magic*). The earliest mention of Chamariel is in Rossi's Gnostic tractate (see Meyer and Smith, *Ancient Christian Magic*). It is probable that the earliest mention of Kimaris is also Coptic, found in the London oriental mss 6796 where the name "Akathama Chamaris" appears (Meyer and Smith). In this text, the entity in question does not appear to be evil; rather, he is addressed as a godlike helping spirit. Baskin's *Dictionary of Satanism* speculates that Cimeries is derived from Cimmerians, a warlike people mentioned in the works of several classical authors as dwelling totally in darkness. It is also possible that Cimeries is derived from Chimaira, the three-headed, fire-breathing lion-goat-serpent who eventually became one of the guardians of the underworld. There is a precedent, considering that the harmless Phoenix is also demonized in the *Goetia*.

Decarabia[5] (also called Carabia) is a demon and, according to *The Lesser Key of Solomon*, a Great Marquis of Hell, or a King and Earl according to the original Latin version of the *Pseudomonarchia Daemonum*[18] (these were somehow left out of the English translation by Reginald Scot). He has thirty legions of demons under his command. Decarabia knows the virtues of all herbs and precious stones, and can change into all birds and sing and fly like them before the conjurer. He is depicted as appearing as a pentagram star, changing into a man under the conjurer's request.

Image of Furfur from Collin de Plancy's *Dictionnaire Infernal*

Furfur (also Furtur) is a powerful Great Earl of Hell, being the ruler of twenty-six legions

of demons.[19] He is a liar unless compelled to enter a magic triangle where he gives true answers to every question, speaking with a rough voice. Furfur causes love between a man and a woman, creates storms, tempests, thunder, lightning, and blasts, and teaches on secret and divine things. He is depicted as a hart or winged hart, and also as an angel. "Furfur" or "furfurēs" in Latin means "bran". However, it seems more likely that the name is a corruption of "Furcifer", the Latin word for "scoundrel". Slightly less likely considering the context, but still possible, is that the name originated from "fūr", Latin for "thief".

Malthus (also Halphas, Malthas, or Malthous) is an Earl of Hell, commanding 26 legions of demons, who is said to have a rough voice when speaking.

Not to be confused with Malphas.

He is often depicted in the shape of a stork. Malthus builds towers and fills them with ammunition and weapons, an armorer of sorts. He is a prince of Hell. He is also said to send his legions into battle, or to places designated by higher commanding demons.

Raum (also Raim, Raym, Räum) is a Great Earl of Hell, ruling thirty legions of demons.

He is depicted as a crow which adopts a human form at the request of the conjurer.

Raum steals treasures out of kings' houses, carrying them where he wishes, and destroys cities and dignities of men (he is said to have great dispraise for dignities).

Raum can also tell things past, present, and future, reconcile friends and foes and invoke love.

Bifrons, illustrated in the "Dictionnaire Infernal" (1863)

Bifrons (also Bifrovs, Bifröus, Bifronze) is a demon, Earl of Hell, with six legions of demons under his command. He teaches sciences and arts, the virtues of the gems and woods, herbs, and changes corpses from their original grave into other places, sometimes putting magic lights on the graves that seem candles. He appears as a monster but then changes his shape into that of a man. The origin of the name is the Roman god Janus.

Andromalius[5] is a mighty Great Earl of Hell, having thirty-six legions of demons at his service. He can bring back both a thief and the stolen goods, punishes all thieves and other wicked people, and discovers hidden treasures, all evilness, and all dishonest dealing. Andromalius is depicted as a man holding a big serpent in his hand.

The Seventy-second Spirit in Order is named Andromalius. He is an Earl, Great and Mighty, appearing in the form of a Man holding a Great Serpent in his Hand. His Office is to bring back both a Thief, and the Goods which be stolen, and to discover all Wickedness and Underhand Dealing, and to punish all Thieves and other Wicked People and also to discover Treasures that be Hid. He ruleth over 36 Legions of Spirits. His Seal is this, the which wear thou as aforesaid, etc.

—The Lesser Key of Solomon

Knights

Furcas (also Forcas) is a Knight of Hell, and rules 20 legions of demons.[20]

Not to be confused with Foras.

He teaches philosophy, astronomy, rhetoric, logic, chiromancy and pyromancy. Furcas is depicted as a strong old man with white hair and long white beard, who rides a horse

while holding a sharp weapon (pitch fork).

Image of Furcas from Collin de Plancy's Dictionnaire Infernal

Furcas is a knight and commeth forth in the similitude of a cruell man, with a long beard and a hoarie head, he sitteth on a pale horssse, carrieng in his hand a sharpe weapon, he perfectlie teacheth practike philosophie, rhetorike, logike, astronomie, chiromancie, pyromancie, and their parts: there obeie him twentie legions.

—Johann Weyer (1583)[21]

The etymology of his name may be derived from the Latin word furca, meaning fork,[22] or from Greco-Roman also meaning a sepulchre (tomb).[23]

Presidents

Marbas is a demon described in the Ars Goetia. He is described as a Great President of Hell governing thirty-six legions of demons. He answers truly on hidden or secret things, causes and heals diseases, teaches mechanical arts, and changes men into other shapes. He is depicted as a great lion that, under the conjurer's request, changes shape into a man.

Buer is a spirit that appears in the 16th century grimoire Pseudomonarchia Daemonum and its derivatives, where he is described as a Great President of Hell, having fifty legions of demons under his command. He appears when the Sun is in Sagittarius.

Buer teaches Natural and Moral Philosophy, Logic, and the virtues of all herbs and plants. He also heals all infirmities, especially of men, and gives good familiars. He is depicted in the shape of Sagittarius, which is as a centaur with a bow and arrows.

Additionally, Louis Le Breton created an illustration of Buer, later engraved by M. Jarrault, depicting the demon as having the head of a lion and five goat legs surrounding his body to walk in every direction. The etymology of his name is uncertain.

(Count/President) Botis (or Otis) is a Great President and Earl of Hell, commanding sixty legions of demons. He tells of all things past and future, and reconciles friends and foes. He is depicted as an ugly viper, but when he changes shape, he puts himself in human shape, with big teeth and two horns. When in human shape he carries a sharp and bright sword in his hand.

(Count/President) Morax (also Foraii, Marax and Farax) is a Great Earl and President of Hell, having thirty-six legions of demons under his command. He teaches Astronomy and all other liberal sciences, and gives good and wise familiars that know the virtues of all herbs and precious stones. He is depicted as a big bull with the face of a man. It has been proposed that Morax is related to the Minotaur which Dante places in Hell (Inferno, Canto xii). See Fred Gettings, Dictionary of Demons (1988) His name seems to come from Latin "morax", that delays, that stops.

Glasya-Labolas as depicted in the "Dictionnaire Infernal" (1863)

(Count/President) Glasya-Labolas (also Caacrinolaas, Caassimolar, Classyalabolas, Glassia-labolis, Glasya Labolas, Gaylos-Lobos) is a mighty President of Hell who commands thirty-six legions of demons.[24] He is the author and captain of manslaughter and bloodshed, tells all things past and to come, gains the minds and love of friends and foes causing love among them if desired, incites homicides and can make

a man invisible. He is depicted as a dog with the wings of a griffin.

Foras (alternatively Forcas or Forrasis) is a powerful President of Hell, being obeyed by twenty-nine legions of demons.

Not to be confused with Furcas.

He teaches logic and ethics in all their branches, the virtues of all herbs and precious stones, can make a man witty, eloquent, invisible, and live long, and can discover treasures and recover lost things. He is depicted as a strong man. His name seems to derive from Latin foras (out, outside).

The Thirty-first Spirit is Foras. He is a Mighty President, and appeareth in the Form of a Strong Man in Human Shape. He can give the understanding to Men how they may know the Virtues of all Herbs and Precious Stones. He teacheth the Arts of Logic and Ethics in all their parts. If desired he maketh men invisible, and to live long, and to be eloquent. He can discover Treasures and recover things Lost. He ruleth over 29 Legions of Spirits, and his Seal is this, which wear thou, etc.

—S. L. MacGregor Mathers (1904)[25]

Malphas is a mighty Great President of Hell, having forty legions of demons under his command.

Not to be confused with Malthus (demon).

He builds houses, high towers and strongholds, throws down the buildings of the enemies, can destroy the enemies' desires or thoughts (and/or make them known to the conjurer) and all what they have done, gives good familiars, and can bring quickly artificers together from all places of the world. Malphas accepts willingly and kindly any sacrifice offered to him, but then he will deceive the conjurer. He is depicted as a crow that after a while or under request changes shape into a man, and speaks with a hoarse voice.

Haagenti (also Haage, Hage) is a Great President of Hell, ruling thirty-three legions of demons. He makes men wise by instructing them in every subject, transmutes all metals into gold, and changes wine into water and water into wine. Haagenti is depicted as a big bull with the wings of a griffin, changing into a man under request of the conjurer.

Camio in bird form as depicted in Collin de Plancy's *Dictionnaire Infernal*, 1863 edition  
Camio (also Caim, Caym) appears in *Ars Goetia*, the first part of *The Lesser Key of Solomon* as a Great President of Hell, ruling over thirty legions of demons. Much detail is offered: he is a good disputer, gives men the understanding of the voices of birds, cattle, dogs, and other creatures, and of the noise of the waters too, and gives true answers concerning things to come. He is depicted in 19th and 20th century occultist illustrations as appearing in the form of the black bird called a thrush, but soon he changes his shape into a man that has a sharp sword in his hand. When answering questions he seems to stand on burning ashes or coals. He is a nocturnal demon that is most powerful during the month of December.[26]

Ose (also Osé, Oze, Oso, Voso) is a Great President of Hell, ruling three legions of demons. He makes men wise in all liberal sciences and gives true answers concerning divine and secret things; he also brings insanity to any person the conjurer wishes, making them believe that they are the creature or thing the magician desired, or makes

that person think he is a king and wearing a crown, or a pope. Ose is depicted as a leopard that after a while changes into a man. His name seems to derive from Latin "os", mouth, language, or "osor", that who abhors.

Amy (also Avnas) is the 58th spirit, a President of Hell,[6] and according to Johann Weyer's *Pseudomonarchia daemonum*:<sup>[27]</sup>

Amy is a great president, and appeareth in a flame of fier, but having taken mans shape, he maketh one marvelous in astrologie, and in all the liberal sciences, he procureth excellent familiars, he bewraieth treasures preserved by spirits, he hath the government of thirtie six legions, he is partlie of the order of angels, partlie of potestats, he hopeth after a thousand two hundreth yeares to returne to the seventh throne: which is not credible.

Valac (also Ualac, Valak, Valax, Valu, Valic, Volac) is a mighty Great President of Hell, having thirty legions of demons under his command. Valac is said to give true answers about hidden treasures; he reveals where serpents can be seen, and delivers them harmless to the magician. He is said to appear as a small poor boy with angel wings riding on a two-headed dragon.

See also

List of angels in *Ars Paulina*

List of sigils of demons

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